

1931.
NEW ZEALAND.

DEPARTMENT OF HEALTH.
ANNUAL REPORT OF DIRECTOR-GENERAL OF HEALTH.

Presented in pursuance of Section 100 of the Hospitals and Charitable Institutions Act, 1926.

HON. A. J. STALLWORTHY, MINISTER OF HEALTH.

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REPORTS.

The DIRECTOR-GENERAL OF HEALTH to the Hon. the MINISTER OF HEALTH, Wellington.
I HAVE the honour to lay before you the annual report of the Department for the year 1930-31.

PART I.—GENERAL SURVEY.

VITAL STATISTICS.

Death-rate.—The crude (actual) death-rate for the Dominion was 8·56 in 1930, as compared with 8·75 in 1929. The infantile-mortality rate was 34·48, a slight increase on the previous rate of 34·10.
Birth-rate.—The figure of 18·80 indicates a steady fall in this rate. The total number of births registered was 26,797, however, representing an increase of fifty on the previous year. The still-birth rate of 32·3 is much the same as last year.

TUBERCULOSIS.

Of the notifiable diseases tuberculosis shows a steady tendency towards decline, the death-rate of 4.55 per 10,000 in 1930 being the lowest so far recorded. This is very satisfactory, and indicates that the methods of dealing with this disease in New Zealand are along the right lines. The public generously subscribed to the Christmas Seal campaign, much credit again being due to the efforts of the Post and Telegraph Department in this connection. With the erection of a permanent health camp at Otaki, facilities will be available in the southern part of the North Island for the treatment of children selected as suffering from mal-nutrition and likely to become victims of tuberculosis. The health camp held at Motuihi Island achieved excellent results on behalf of such children in the Auckland District. The following-up of contacts has been extended considerably. In this sphere the School Medical Service has been particularly active.

OTHER INFECTIOUS DISEASES.

The infectious-disease rates for the past year have been remarkably low. These diseases are fully commented upon by the Director of Public Hygiene in his report. One would welcome a decrease in the number of deaths from diphtheria, and there is every reason to believe that this could be achieved if parents would avail themselves of the facilities to hand to have their children protected by toxin anti-toxin or toxoid.

CANCER.

There is a slight fall in the mortality-rate for this cause, there being fifteen deaths less than in the previous year. The New Zealand Branch of the British Empire Cancer Campaign Society is proving a very active force in dealing with this too prevalent disease. The public have generously subscribed to this organization, and thanks are due to them for their liberal support. The research work being carried out by Dr. A. M. Begg at the Medical School, Dunedin, under the control of a central committee of the society is steadily adding to the knowledge of this disease in New Zealand, and leading, I hope, to its ultimate conquest. Through newspaper articles and displays of posters at post-offices throughout the Dominion, the Department is endeavouring to educate the public as to the signs of cancer and as to the value of early treatment.

MATERNAL WELFARE.

Dr. Paget's report indicates the importance and gravity of this problem, and gives detailed information as to the efforts made and the line of action still necessary for protection of motherhood in this country. As pointed out, the standard of ante-natal care, speaking generally, remains below what is required for safeguarding the mother. Excellent results, however, at the St. Helens Hospitals demonstrate the value of ante-natal care under close medical supervision. Attention is drawn in Dr. Paget's report to the part played by criminal abortion in influencing our unduly high maternal death-rate. This is a matter of grave concern.

Undoubtedly, the standard of our public and private maternity hospitals, and of private hospitals generally, has greatly improved during the last few years. For this result much credit is due to the medical and nursing professions, which have co-operated freely with the Departmental officers working in this field.

HEALTH EDUCATION.

This important and effective field of preventive effort has not been neglected. Health articles continue to be published by the press throughout the Dominion, and of the educational value of these there can be no doubt. From reports received it is evident that these articles assist to lay the foundation for an enlightened public opinion in matters of personal and community health. Newspapers constitute one of the principal mediums for the enlargement of the minds of the people in such matters, and the Department is therefore much indebted to the press for their co-operation in this work. Through the courtesy of the Radio Broadcasting Co. of New Zealand health talks are now being broadcast weekly in the four main centres.

HAWKE'S BAY EARTHQUAKE.

The disastrous earthquake in the Hawke's Bay District was a severe test of the public-hospital system of New Zealand, which was met successfully. The brunt of the work in connection with the care of the injured fell, in the first instance, on the relatively small but devoted band of medical men and nurses in the affected area and on the Hawke's Bay Hospital Board. The gravity of the position was added to by the damage to the public hospital, which necessitated the provision of accommodation for the patients who at the time of the earthquake were in the wards of that institution. Emergency accommodation was rapidly made available at the racecourses in Napier and Hastings, and here everything possible was done for those requiring medical care. In these early hours there was a general attitude of unsparing devotion to duty, and not a few instances of heroism, which showed that the doctors and nurses in the stricken area lived up to the noblest traditions of their respective professions.

Assistance rapidly came from nearby towns until within less than twenty-four hours there were in the area more medical men and nurses than could profitably be employed. Much good work was done by this willing group of volunteers, not the least of which was that they were able to take over the actual care of the sick and injured, so giving the local doctors and nurses a much-needed rest.

As soon as transport facilities permitted, the evacuation of patients was commenced. The relatively scanty accommodation at Waipukurau and Dannevirke Public Hospitals was soon filled, and it became necessary to send patients further afield. The Palmerston North organization proved invaluable at this stage. Not only did Palmerston North Hospital itself absorb approximately one hundred of the injured, but the Board organization was used as a clearing-station for the distribution of patients amongst other public hospitals. This work was exceptionally well done, and the Palmerston North Board has received a special letter of appreciation from the Department.

The efforts of the Department in the first instance were directed towards ensuring that an adequate number of doctors and nurses and adequate medical and surgical stores were despatched to the stricken area. The next step was to organize on a better basis the temporary hospitals which had been set up at Napier and Hastings Racecourses. A military field hospital with tent accommodation for some two hundred and fifty patients was despatched from Trentham the night of the earthquake, and the following day was erected at the Napier Racecourse, so supplementing the accommodation already available there. Members of the staff of the Department then took over the duties of the Medical Superintendent, Matron, and heads of various departments of the Napier Hospital, so enabling these officers to leave the area for a brief and much-needed rest. The Department next had to organize the work in connection with the evacuation of the patients and their reception in the various public hospitals. That this work was carried out so expeditiously and smoothly reflects great credit on the ambulance workers, the Railway Department, and the staffs of the hospitals handling the patients.

Sanitary problems in the earthquake area also threw a severe strain on the departmental organization, but again were met successfully. The damage to sewerage systems and to public water-supplies in both Napier and Hastings constituted a severe menace, but the action taken proved adequate in preventing any outbreak of typhoid fever or other infectious disease. Fortunately the water-supply in both Napier and Hastings was obtained from artesian wells, but despite reasonably satisfactory chemical and bacteriological tests it was deemed advisable to chlorinate the supply in each instance. Chlorination is still being practised, as in Napier the pressure in the mains varies considerably and the whole of the reticulation has been so damaged as to render contamination an ever-present danger, whilst in Hastings chemical tests indicate a slight suspicion of sewage contamination.

The whole Division of Public Hygiene—Director, Medical Officers of Health, and Inspectors—did yeoman work in dealing with this phase of the earthquake damage. They received invaluable assistance from the engineers and sanitary staffs of neighbouring boroughs. The satisfactory results obtained are due to their painstaking efforts.

The total number of Hawke's Bay patients accommodated in the public hospitals was 536. Of these, 82 were patients who, at the time of the earthquake, had been under treatment at the Napier Hospital, and who had been evacuated without earthquake injury. In addition, of course, there was an unknown number of people who suffered from minor injury not necessitating treatment as in-patients or who were treated privately by their own doctors. The total number of fatalities was 261. This figure includes 245 who were killed outright or died shortly after the earthquake, and an additional sixteen who died after admission to public hospitals. It will be seen, then, that the earthquake was most disastrous, and that the tragedy was of a magnitude unparalleled in the history of New Zealand.

I have already referred to the fine work of the medical and nursing professions, of Hospital Boards, and of engineering and sanitary staffs of various municipalities. Before concluding this section of my report, I should like to express the Department's sincere appreciation of and gratitude for assistance freely rendered by the St. John Ambulance, the Red Cross Society, the Wellington Free Ambulance, the Wellington Automobile Club, and many other organizations and individuals too numerous to mention by name.

SCHOOL HYGIENE.

A feature of Dr. Ada Paterson's report is the evidence of special investigations by officers engaged in school medical inspection. Dr. Turbott's reports on "Maori Susceptibility to certain Infectious Diseases" and "The Nutritional Value of Milk" are of much interest, as is also Dr. Henderson's comparative health-study of Maori school-children. Other important activities drawn attention to in this report, such as preventive tuberculosis work, will doubtless be read with considerable interest by those concerned with the welfare of our school-children.

DENTAL HYGIENE.

Mr. Saunders' report signifies a busy year, as shown by the increasing number of school-children receiving treatment and by the 155 additional schools which have been brought under systematic supervision. This service is being extended as fast as the economic conditions will allow. Credit is due to the Director and his officers for the high standard of work maintained by the dental nurses.

NURSING.

Among the important matters mentioned in Miss Bicknell's final report before retiring from the post of Director, Division of Nursing, are the classification of training schools into two grades; the lengthened course of training of nurses and untrained women to qualify as maternity nurses and midwives, and the review of the post-graduate course for nurses.

By the retirement of Miss Bicknell, after twenty-five years' service, during eight of which she occupied the responsible position as Director of this Division, the Department has lost an officer who has rendered signal service to the Department and the nursing profession.

MAORI HYGIENE.

From motives of economy it is not proposed to include in this report detailed statistics in reference to the Maori race. It is interesting to note, however, that, in spite of the increased death-rate and decreased birth-rate, the percentage increase of the Maori race is still higher than that of the European—namely, 1.75 per cent., as compared with 1.0 per cent. The infantile-mortality rate of 88.51 per 1,000 live births is an increase on the previous year's rate. In this connection special endeavours are being made to reduce deaths of infants to a figure more approaching the European rate. Tuberculosis is still responsible for an unduly large number of deaths, the rate for all forms being 34.03 per 10,000 of mean population. The report of the Director of School Hygiene gives some interesting information regarding the physical condition of Native-school children.

BOARDS ASSOCIATED WITH DEPARTMENTS.

The various Boards associated with the Department have continued their work during the year under review. I refer to the Board of Health, the Medical Council, Plumbers Board, the Masseurs Registration Board, the Opticians Board, and the Nurses and Midwives Registration Board.

Reference to the work of the last-mentioned Board will be found in the report of the Director, Division of Nursing.

Following the usual practice, quarterly meetings of each of these bodies were held, and in each case good work is being performed. The Government has been fortunate in securing on these various Boards public-spirited members imbued with the ideal of forwarding the best interests of the Dominion. On some future occasion I hope to record in greater detail the work of each of the Boards referred to.

HOSPITAL BOARDS.

Financial information and general statistics with regard to hospitals and institutions under control of Boards will be given in the appendix to this report to be issued after Secretaries' returns come to hand.

STAFF.

I regret to record the deaths of Dr. H. J. McLean, Port Health Officer, Wellington, Mr. J. L. Bruce, Inspector of Farms, and Mr. P. Mahony, Officer in Charge of Sera and Dental Stores. These officers most ably and loyally served the Department.

Dr. Ellison who recently left the services of the Department to take over the important duties of Chief Medical Officer, Rarotonga, proved a worthy successor to Dr. Buck, and did much good work as Director of the Division of Maori Hygiene. He has the good wishes of his former colleagues in his new sphere of activities.

It is only fitting that I should conclude this report with a brief expression of the Department's sincere appreciation and esteem of Dr. Valintine, who, after many years of onerous and faithful service, has retired from the position of Director-General of Health. To him is due a great deal of the credit for the marked development which has taken place in public-health administration in this country. He has been a true pioneer, with the necessary vision to recognize the problems confronting him, the special knowledge to grapple with these problems, and the will and determination to carry him through to successful achievement. He carries with him into his well-earned retirement the good wishes of one and all of his former staff.

In conclusion, I wish to thank officers for loyal and efficient service during a period requiring unrelenting vigilance and economic administration.

M. H. WATT, Director-General of Health.

PART II.—PUBLIC HYGIENE.

I have the honour to submit my annual report for the year ended 31st March, 1931. It is necessarily brief and devoid of graphs, owing to need of economy.

SECTION 1.—VITAL STATISTICS.

POPULATION.

The mean population of the Dominion for 1930 (exclusive of Maoris) was estimated to be 1,425,084. This total represents an increase over the corresponding figure for the previous year of 18,142, or a percentage increase of population of 1·29.

BIRTHS.

The births of 26,797 living children were registered in the Dominion during 1930, as against 26,747 in 1929. The birth-rate for 1930 was thus 18·80 per 1,000 of mean population.

The general course of the birth-rate during the last five years is shown in the following table :—

Births (Number and Rate) in New Zealand, 1926–30.

Year.					Total Number of Births registered.	Birth-rate per 1,000 of Mean Population.
1926	..	..	..	..	.. 28,473	21·05
1927	..	..	..	..	.. 27,881	20·29
1928	..	..	..	..	.. 27,200	19·56
1929	..	..	..	..	.. 26,747	19·01
1930	..	..	..	..	.. 26,797	18·80

The birth-rate steadily declines. There were 26,797 births for a population of 1,425,084, and there were 12,199 deaths, the difference or natural increase being 14,598 persons, or 1·0 per cent. only of the total population. Back in 1870 the natural increase was 3·1 per cent.

DEATHS.

The total number of deaths (12,199) registered during the year 1930, as compared with 12,314 in 1929, shows a decrease of 115.

Crude Death-rates.

Year.	Crude Death-rate per 1,000 Mean Population.			Year.	Crude Death-rate per 1,000 Mean Population.		
1926	8·74	1929	..	..	8·75
1927	8·45	1930	..	..	8·56
1928	8·49				

New Zealand has a very low general death-rate, but, owing to the steadily reducing birth-rate, her annual natural increase of population is only 1·0 per cent.

STILL-BIRTHS.

Still-births, which are defined by the Births and Deaths Registration Act of 1924 as “ children which have issued from their mother after the expiration of the twenty-eighth week of pregnancy, and which were not alive at the time of such issue,” are compulsorily registrable in the Dominion. The next table shows the number of such births and their rate per 1,000 live births in individual years for the quinquennium 1926–30.

Still-births (Number and Rate) in New Zealand, 1926–30.

Year.					Total Number of Still-births registered.	Rate of Still-births per 1,000 Live Births.
1926	..	..	..	..	.. 886	31·1
1927	..	..	..	..	.. 878	31·5
1928	..	..	..	..	.. 839	30·8
1929	..	..	..	..	.. 870	32·5
1930	..	..	..	..	.. 865	32·3

(NOTE.—Still-births are not included, either as births or deaths, in the various numbers and rates given elsewhere in this report.)

THE PRINCIPAL CAUSES OF DEATH.

The following table gives the main causes of deaths last year in their order of magnitude, and the actual number of deaths therefrom.

TOTAL DEATHS IN NEW ZEALAND IN 1930, 12,199.							Actual Deaths.
Causes.							
Heart-disease (all forms)	..	..	..	..	..	..	2,897
Cancer	..	..	..	..	..	..	1,452
Chest-disease—							
Pneumonia	..	..	..	..	..	..	429
Pneumonia secondary to influenza, whooping-cough, and measles							87
Bronchitis	..	..	..	..	..	..	268
Broncho-pneumonia	..	..	..	..	..	..	218
							1,002
Violence	..	..	..	..	..	..	977
Tuberculosis (all forms)	..	..	..	..	..	..	649
Apoplexy or cerebral hæmorrhage	..	..	..	..	..	..	659
Kidney or Bright's disease	..	..	..	..	..	..	567
Senility	..	..	..	..	..	..	418
Disease of the arteries	..	..	..	..	..	..	432
Diabetes	..	..	..	..	..	..	223
Diseases and accidents of childbirth (<i>i.e.</i> , maternal mortality)						..	136
Hernia and intestinal obstruction	..	..	..	..	..	..	95
Appendicitis	..	..	..	..	..	..	99
Diarrhœa and enteritis	..	..	..	..	..	..	77
Epilepsy	..	..	..	..	..	..	56

Common Infectious Diseases.

Influenza (all forms, including pneumonic)	..	..	..	..	131
Diphtheria	..	..	..	..	58
Scarlet fever	..	..	..	..	16
Typhoid fever	..	..	..	..	7
Whooping-cough	33
Measles	2

Infant Mortality.

Infant deaths (under one year), all causes	924
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THE PRINCIPAL CAUSES OF DEATH ITEMIZED.

Cause.	Year.		
	1930.	1929.	1928.
Heart-diseases (all forms)	2,897	2,533	2,315
Apoplexy or cerebral hæmorrhage	659	634	643
Diseases of the arteries	432	428	394
	3,988	3,595	3,352

These diseases of the heart and arteries accounted for 3,988, or 32 per cent., of the total deaths. In 1929 they accounted for 29 per cent., and in 1928 28 per cent. of the total. Quite a proportion of these deaths apply to persons under sixty years of age. This appears to present a field worthy of special investigation by the Department.

CANCER, 1,452.

The following table, taken from the "New Zealand Official Year-book," shows the cancer death-rate in the Dominion for the last five years:—

Number of Persons who died from Cancer, the Proportion per 10,000 Persons living, and the Percentage of all Deaths, 1926–30.

Year.	Deaths from Cancer.	Total Deaths, all Causes.	Deaths from Cancer per 10,000 of Living Persons.	Deaths from Cancer per 100 of all Deaths.
1926	1,341	11,819	9·91	11·35
1927	1,324	11,613	9·63	11·40
1928	1,374	11,811	9·87	11·63
1929	1,467	12,314	10·43	11·91
1930	1,452	12,199	10·19	11·90

We know not the cause of cancer. It is increasing in prevalence at a slow, not rapid, rate. Being a disease of late life, and having in the past often missed detection or registration, its apparent increase is in considerable measure accounted for by our longer span of life and greater skill in diagnosis. The real increase is slight, and can be checked if advice and treatment be sought early in the disease. Recent results show that the proportion of actual cures from the treatment of early cancer is very high indeed.

It has always been an important cause of death, but results show that nowadays submission to skilled treatment at an early stage is worth while. Particularly after the age of thirty-five we should seek medical examination for any unusual condition which might be cancer.

CHEST-DISEASES, 1,002.

Pneumonia	429
Pneumonia secondary to influenza, whooping-cough, and measles ..	87
Broncho-pneumonia	218
Bronchitis	268
	<hr/>
	1,002

There is reason to believe that many of these deaths could be prevented. In some countries the experiment has been tried of making every pneumonia case compulsorily notifiable, and attempting isolation. Apparently the results achieved have not justified the expense and trouble thereby involved, but the fact remains that probably a large proportion of these illnesses are infectious. All associated with epidemics of influenza, measles, whooping-cough, or diphtheria certainly are. Again, when in the absence of a recognized outbreak of such common infectious diseases, groups of pneumonia or broncho-pneumonia cases occur, in a community, affecting in considerable measures virile young adults, adolescents, and children, of which it can be said the infecting agent is virulent, then measures can be taken which give promise of considerably reducing the death-rate from these lung-ailments. Such measures are complete case-isolation to be practised by doctor and nurse, and convalescents to be restrained from close contact with other persons, attendance at indoor public gatherings, &c., until they have completely recovered.

VIOLENCE, 977.

Regarding the 977 deaths last year from violence, of which 773 were due to accident, 193 to suicide, and 11 to homicide, it is noteworthy that in the last eight years, whereas the death-rates from suicide and homicide have shown little variation, that from accident, especially motor-vehicles accident, has increased considerably.

In the last five years the number of deaths annually from motor-vehicle accidents have averaged 172.

TUBERCULOSIS (ALL FORMS), 649.

The following table indicates the course of this disease since 1926 :—

Year.	Number of Deaths from Tuberculosis.	Death-rate from Tuberculosis per 10,000 of Mean Population.	Year.	Number of Deaths from Tuberculosis.	Death-rate from Tuberculosis per 10,000 of Mean Population.
1926 ..	727	5.37	1929 ..	642	4.56
1927 ..	668	4.86	1930 ..	649	4.55
1928 ..	699	5.02			

New Zealand has the lowest death-rate from tuberculosis in the world. In common with many other countries, including Great Britain, it has steadily reduced in the last half-century. This year's rate is remarkably low. Tuberculosis, however, still takes fifth place as a cause of death in New Zealand, and disables temporarily or permanently many more than it kills.

Of 649 deaths from tuberculosis last year, 529 were assigned to pulmonary tuberculosis, and 120 to other forms of this disease, comprising tuberculosis meningitis and peritonitis, and tuberculosis of the bones, joints, glands, &c.

Pulmonary Tuberculosis.

The pulmonary cases are regarded by most authorities as conveyed from human sources. There were 1,244 notifications of fresh cases during the year.

Other Forms of Tuberculosis.

The 120 deaths last year from other forms of tuberculosis were made up as follow :—

Tuberculosis of meninges and central nervous system	54
Tuberculosis of intestines and peritoneum	16
Tuberculosis of vertebral column	11
Tuberculosis of bones and joints	3
Tuberculosis of skin and subcutaneous cellular tissue	1
Tuberculosis of the lymphatic system	1
Tuberculosis of genito-urinary system	8
Tuberculosis of other organs	2
Disseminated tuberculosis	24

120

A small proportion only of these latter deaths, particularly those of children, are deemed by recognized authorities to be possibly due to infection from the cow, and bacteriological tests of milk-supplies in New Zealand have shown the milk-supply to be remarkably free from bovine tubercle.

KIDNEY OR BRIGHT'S DISEASE, 567.

Since 1900, unlike heart-disease, apoplexy, and diseases of the arteries, the death-rate from which have greatly increased, that from kidney or Bright's disease has shown little variation.

DIABETES, 223.

There has been little variation in the death-rate from diabetes in recent years.

MATERNAL MORTALITY.

The questions of maternal mortality and diseases and accidents of childbirth are dealt with fully in the report on maternal welfare by my colleague, Dr. Paget.

SECTION 2.—THE COMMON INFECTIOUS DISEASES.

INFLUENZA (ALL FORMS), 131.

Number of Deaths from Influenza in New Zealand, 1925–30.

Year	Number.	Year.	Number.
1925	86	1928	242
1926	288	1929	297
1927	131	1930	131

PNEUMONIC INFLUENZA.

Pneumonic influenza, the deaths from which are included in “Influenza (all forms),” is a form of influenza which is compulsorily notifiable.

Pneumonic Influenza in New Zealand, 1926–30.

Year.	Deaths.	
	Number.	Rate per 10,000 of Mean Population.
1926	132	0·98
1927	43	0·31
1928	100	0·72
1929	120	0·85
1930	66	0·46

DIPHTHERIA, 58.

Diphtheria in New Zealand, 1926–30.

Year.	Notifications.		Deaths.*	
	Number.	Rate per 10,000 of Mean Population.	Number.	Rate per 10,000 of Mean Population.
1926	1,975	14·59	66	0·49
1927	1,446	10·52	58	0·42
1928	1,600	11·51	72	0·52
1929	1,687	11·99	92	0·65
1930	1,440	10·10	58	0·41

* Figures include deaths from croup.

SCARLET FEVER, 16.

The course of scarlet fever in New Zealand is briefly shown in the table below.

Scarlet Fever in New Zealand, 1926–30.

Year.	Notifications.		Deaths.	
	Number.	Rate per 10,000 of Mean Population.	Number.	Rate per 10,000 of Mean Population.
1926	1,583	11·70	8	0·06
1927	2,185	15·89	16	0·12
1928	6,127	44·06	55	0·40
1929	4,848	34·46	27	0·19
1930	2,244	15·75	16	0·11

WHOOPING-COUGH, 33 ; MEASLES, 2.

Neither of these two diseases is compulsorily notifiable. Whooping-cough was prevalent, but the number of deaths caused thereby was low in comparison with former epidemics.

TYPHOID OR ENTERIC FEVER, 7.

The position as regards this disease for the period 1926-30 is shown in the table below.

Enteric Fever in New Zealand, 1926-30.

Year.	Notifications.		Deaths.	
	Number.	Rate per 10,000 of Mean Population.	Number.	Rate per 10,000 of Mean Population.
1926	302	2.23	19	0.14
1927	270	1.96	11	0.08
1928	290	2.09	16	0.12
1929	278	1.98	22	0.16
1930	149	1.04	7	0.05

It is also of interest to state that the death-rate from typhoid fever (average) for the last five years was approximately forty times less than a similar average taken fifty years ago.

SECTION 3.

INFANT MORTALITY, 924.

The infant-mortality rate for 1930 was 34.48 per 1,000 births.

Infant Mortality in New Zealand, 1926-30 (per 1,000 Live Births).

Year.	Under One Month.	One Month and under Twelve Months.	Total under Twelve Months.	Year.	Under One Month.	One Month and under Twelve Months.	Total under Twelve Months.
1926 ..	25.46	14.30	39.76	1929 ..	23.26	10.84	34.10
1927 ..	25.83	12.91	38.74	1930 ..	24.03	10.45	34.48
1928 ..	25.41	10.77	36.18				

It will be seen from the above table that there was a reduction last year in the death-rate of infants over one month of age, but as regards those under 1 month of age the slight reduction in the death-rate shown in recent years was not maintained last year.

Analysis of Deaths of Infants under One Month of Age, 1930.

The following table gives the causes of these deaths during the year :—

Cause of Death.				Under One Day.	One Day and under One Week.	One Week and under Two Weeks.	Two Weeks and under Three Weeks.	Three Weeks and under One Month.	Total.
Influenza .. .. .	..	..	..	..	..	..	..	1	1
Syphilis .. .. .	..	..	..	..	..	..	..	..	..
Meningitis .. .. .	..	..	..	..	1	1	..	1	3
Convulsions .. .. .	..	..	..	..	6	3	..	..	9
Broncho-pneumonia .. .. .	..	..	..	..	..	1	3	..	4
Pneumonia .. .. .	..	..	..	..	2	1	..	..	3
Diarrhoea and enteritis .. .. .	..	..	..	..	..	1	1	..	2
Congenital malformations .. .. .	..	..	..	16	52	18	8	5	99
Congenital debility .. .. .	..	..	..	14	18	5	3	..	40
Injury at birth .. .. .	..	..	..	13	41	7	1	..	62
Premature birth .. .. .	..	..	..	149	107	24	8	8	296
Other diseases .. .. .	..	..	..	24	46	6	5	2	83
Accidental mechanical suffocation .. .. .	..	..	..	..	..	..	..	1	1
Other causes .. .. .	..	..	..	8	15	7	6	5	41
Totals, 1930 .. .. .	..	..	..	224	288	74	35	23	644
Totals, 1929 .. .. .	..	..	..	197	295	49	41	40	622

Thus 512 of a total of 644 infant deaths in the first month of life occurred during the first week, and may be regarded as mainly due to pre-natal influences. It is also of interest to record that well over half of the infant deaths (in the first twelve months of life) occurred in this first week—i.e., 512 in a total of 924.

TABLE A.—NOTIFIABLE DISEASES IN NEW ZEALAND, 1930, SHOWING DISTRIBUTION BY MONTHS.

Month.	Scarlet Fever.	Diphtheria.	Enteric Fever.	Tuberculosis.	Cerebro - spinal Meningitis.	Pollomyelitis.	Influenza.	Pneumonia.	Myxipelas.	Puerperal Fever.		Belampsia.	Tetanus.	Hydatids.	Trachoma.	Ophthalmia Neonatorum.	Lethargic Encephalitis.	Food Poisoning.	Chronic Lead Poisoning.	Dysentery, Bacillary.	Actinomycosis.	Undulant Fever.	Phosphorous Poisoning.	Totals.
										Ordinary.	Following Abortion or Miscarriage.													
January ..	221	113	15	115	5	1	2	68	33	9	18	9	1	5	3	4	3	5	..	6	..	..	..	636
February ..	205	97	11	98	2	3	4	34	14	17	10	5	3	1	..	2	1	6	..	9	..	1	..	525
March ..	252	145	18	110	1	..	6	48	21	11	19	5	5	2	..	2	2	4	..	9	..	1	..	661
April ..	262	158	16	97	3	..	8	72	33	17	22	9	..	6	..	3	2	1	..	9	..	..	..	717
May ..	220	141	13	85	1	..	6	57	37	12	15	7	..	6	..	1	..	..	..	2	..	..	..	609
June ..	177	111	17	69	2	1	10	79	25	6	8	5	2	3	1	3	..	..	1	3	..	2	..	525
July ..	172	122	9	98	1	1	20	132	26	9	12	9	..	5	..	4	..	1	..	3	..	..	..	628
August ..	157	166	6	94	3	1	15	126	24	15	19	11	5	5	..	4	1	..	1	9	..	..	..	661
September ..	178	151	7	117	3	1	14	105	34	16	5	10	1	3	..	2	2	..	..	7	..	..	..	656
October ..	164	96	2	118	2	1	9	101	26	16	9	7	..	5	2	4	..	..	..	4	1	..	..	567
November ..	124	67	17	115	5	..	8	122	27	15	13	13	6	6	1	5	2	1	..	2	1	2	1	553
December ..	112	73	18	128	2	2	2	96	22	14	12	3	4	5	..	2	..	..	1	4	..	..	..	500
Totals ..	2,244	1,440	149	1,244	30	12	104	1,040	322	157	162	93	30	52	7	36	15	18	3	68	5	6	1	7,238

TABLE B.—NOTIFICATIONS OF CASES OF NOTIFIABLE DISEASES FOR YEAR ENDED 31ST DECEMBER, 1930.

Name of Disease.	North Auckland.	Central Auckland.	South Auckland.	Thames-Tauranga.	Taranaki.	East Cape.	Wanganui-Horowhenua.	Waikarapa-Hawke's Bay.	Central Wellington.	Nelson-Marlborough.	Canterbury.	West Coast.	Otago.	Southland.	Totals.
Scarlet fever ..	105	324	197	59	81	61	176	122	230	66	378	40	289	116	2,244
Diphtheria ..	78	237	144	29	96	26	189	50	280	13	150	78	43	17	1,440
Enteric fever ..	8	20	27	11	8	42	2	10	4	2	7	2	3	3	149
Tuberculosis ..	97	198	130	34	39	42	42	55	137	12	222	30	142	64	1,244
Cerebro-spinal meningitis ..	..	5	4	..	..	4	1	3	3	..	2	..	6	2	30
Polio-myelitis ..	1	..	2	1	..	..	2	..	..	2	3	..	1	..	12
Influenza ..	1	13	8	1	11	3	6	11	8	5	30	6	1	..	104
Pneumonia ..	69	199	83	52	104	70	72	68	120	17	103	4	63	16	1,040
Erysipelas ..	15	67	21	5	8	18	18	21	35	7	66	3	32	6	322
Puerperal fever— Ordinary ..	9	20	18	3	5	1	17	7	18	4	27	5	20	3	157
Following abortion or miscarriage ..	12	94	5	2	..	1	5	5	9	2	22	3	2	..	162
Eclampsia ..	7	11	11	1	8	2	5	6	9	5	17	2	8	1	93
Tetanus ..	2	6	1	1	2	..	..	4	3	2	3	2	3	1	30
Hydatids ..	..	4	2	..	1	2	2	5	4	..	24	..	8	..	52
Trachoma ..	..	1	1	..	..	2	1	..	2	..	..	..	..	..	7
Ophthalmia neonatorum ..	1	7	2	1	..	2	3	3	5	..	4	..	7	1	36
Lethargic encephalitis ..	..	1	1	..	3	1	2	1	..	..	5	..	1	..	15
Food poisoning ..	..	..	2	..	1	2	..	5	..	..	8	..	..	..	18
Chronic lead poisoning ..	..	..	..	..	1	1	..	..	1	..	..	..	..	..	3
Dysentery, bacillary ..	16	24	13	..	2	1	..	12	..	..	..	..	..	..	68
Actinomycosis ..	..	3	..	..	..	..	1	..	..	..	..	..	1	..	5
Undulant fever ..	..	..	..	..	..	..	3	..	1	..	2	..	..	..	6
Phosphorous poisoning ..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1
Totals, 1930 ..	421	1,234	672	200	370	281	557	388	869	137	1,074	175	630	230	7,238

TABLE C.—NOTIFIABLE DISEASES IN NEW ZEALAND, 1930, SHOWING DISTRIBUTION BY AGE AND SEX.

Disease.	Under 1 Year.		1 to 5 Years.		5 to 10 Years.		10 to 15 Years.		15 to 20 Years.		20 to 25 Years.		25 to 30 Years.		30 to 35 Years.		35 to 40 Years.		40 to 45 Years.		45 to 50 Years.		50 to 55 Years.		55 to 60 Years.		60 to 65 Years.		65 to 70 Years.		70 to 75 Years.		75 to 80 Years.		80 Years and over.		Total Cases at all Ages.			
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
Scarlet fever ..	9	10	257	252	346	435	80	252	54	114	36	95	28	76	22	45	12	38	16	20	14	9	4	7	1	6	2	4	881	1,363
Diphtheria ..	9	7	222	194	283	257	59	93	23	62	20	63	7	41	6	31	3	12	9	11	..	6	1	6	1	5	1	1	644	796
Enteric fever	8	6	15	7	8	15	17	9	10	6	13	6	7	4	6	..	4	1	1	1	1	1	1	1	1	1	2	1	92	57
Tuberculosis	2	5	7	12	18	31	67	93	84	139	90	118	79	73	61	50	49	46	52	24	36	8	29	14	8	12	4	6	6	1	1	1	1	2	1	..	600	644
Cerebro-spinal meningitis ..	3	1	4	2	4	1	1	2	5	..	..	1	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21	9
Polionyelitis ..	..	..	2	2	3	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	4
Puerperal fever—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ordinary	7	39	..	61	..	31	..	14	..	5	157	162
Following abortion or miscarriage	6	45	..	51	..	31	..	22	..	7
Eclampsia
Erysipelas ..	3	4	5	8	..	..	2	3	..	5	4	12	4	17	15	15	11	9	..	3	..	23	15	16	3	14	10	11	7	8	4	5	3	3	2	..	140	182	
Ophthalmia neonotorum ..	17	19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17	19
Influenza ..	1	..	4	..	8	..	3	3	7	3	5	2	3	4	5	5	7	2	3	..	9	..	5	1	4	2	4	1	1	..	..	..	..	2	1	1	..	75	29
Pneumonia ..	26	16	92	76	86	57	49	33	50	35	40	18	31	24	44	14	45	17	50	16	46	17	33	11	22	15	16	10	12	5	10	3	7	5	4	664	376			
Lethargic encephalitis ..	..	..	..	3	1	..	1	1	..	..	..	..	..	1	1	2	..	1	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	8
Trachoma ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	1
Hydatids	1	1	1	1	2	2	5	2	1	4	3	3	2	4	2	5	4	6	1	29	23
Tetanus ..	..	..	1	..	5	1	3	1	2	1	2	1	2	1	2	1	2	..	1	1	1	4	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	24	6
Dysentery, bacillary ..	..	..	6	4	5	4	1	5	3	2	6	1	1	3	2	2	..	3	3	1	1	4	1	2	..	..	..	..	..	..	..	..	2	..	..	..	..	40	28
Actinomycosis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1
Food poisoning ..	..	..	2	..	..	..	..	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	9
Chronic lead poisoning ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1
Undulant fever
Phosphorous poisoning
Totals ..	70	59	608	555	773	788	226	443	237	349	214	463	189	431	193	266	152	192	159	131	157	87	105	53	65	59	46	44	26	22	23	10	15	12	10	6	3,268	3,970		

TABLE D.—VENEREAL-DISEASE CLINICS.—CASES TREATED DURING THE YEAR ENDED 31ST DECEMBER, 1930.

	Auckland.		Wellington.		Christchurch.		Dunedin.		Totals.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Number of persons dealt with at or in connection with the out-patient clinic for the first time and found to be suffering from—										
Syphilis	102	49	24	25	18	11	27	13	171	98
Soft sore	9	..	11	..	11	..	1	1	32	1
Gonorrhœa	631	138	370	80	321	90	109	50	1,431	358
No venereal disease	86	32	104	54	32	26	35	7	257	119
Total attendance at the out-patient clinics who were suffering from—										
Syphilis	1,536	535	1,309	697	1,805	630	1,422	758	6,072	2,620
Soft sore	122	..	14	..	91	..	1	..	228	..
Gonorrhœa	18,204	1,639	16,000	2,378	9,362	3,315	6,571	2,472	50,137	9,804
No venereal disease .. .. .	..	..	146	97	81	27	44	7	271	131
Aggregate number of in-patient days of treatment given to persons suffering from—										
Syphilis	488	208	429	..	..	..	..	..	917	208
Gonorrhœa	1,528	374	4,680	..	..	..	..	..	6,208	374

SECTION 4.—NUMBER OF VESSELS INSPECTED DURING THE YEAR ENDED 31ST DECEMBER, 1930.

Port.	Number of Vessels inspected.	Prohibited Immigrants.	Infectious-disease Cases.	V.D. Cases.
<i>Combined Auckland Health District—</i>				
Auckland	318	138	6	..
Tauranga	1	..	..	..
<i>Taranaki Health District—</i>				
New Plymouth	9	..	..	..
<i>East Cape Health District—</i>				
Gisborne	3	..	..	..
<i>Combined Wellington Health District—</i>				
Wellington	154	..	1	24
Wanganui	2	..	..	..
Napier	5	..	..	..
Nelson	2	..	..	..
Picton	4	..	..	..
<i>Combined Canterbury Health District—</i>				
Lyttelton	19	2	..	3
Timaru	2	..	..	..
Greymouth	5	..	..	..
<i>Combined Otago Health District—</i>				
Oamaru	1	..	..	..
Port Chalmers	23	..	..	..
Bluff	48	..	..	..
Totals	596	140	7	27

SECTION 5.—WORKING OF THE SALE OF FOOD AND DRUGS ACT.

TABLE 1.—SHOWING SAMPLES RESPECTIVELY OF MILK AND OTHER FOODSTUFFS TAKEN AND DEALT WITH DURING THE YEAR ENDED 31ST DECEMBER, 1930.

Health District.	Number of Samples taken.		Number of Vendors.		Samples not complying.					
					Number of Samples.		Number of Warnings issued.		Number of Prosecutions recommended.	
	Milk.	Other.	Milk.	Other.	Milk.	Other.	Milk.	Other.	Milk.	Other.
North Auckland ..	264	61	230	53	16	5	4	2	8	3
Central Auckland ..	1,018	297	1,006	260	71	32	62	22	8	8
South Auckland ..	180	27	180	27	6	..	4	..	2	..
Thames-Tauranga ..	34	11	34	11	2	1	2	..	..	1
Taranaki ..	70	16	53	15	1	2	..	..	1	2
East Coast ..	109	15	109	15	3	1	2	..	1	1
Wanganui-Horowhenua	221	90	166	71	25	6	8	1	17	5
Wairarapa-Hawke's Bay	265	91	261	68	13	4	4	..	9	4
Central Wellington ..	1,752	99	1,616	57	40	6	13	1	26	3
Nelson-Marlborough ..	111	42	110	35	4	2	..	2	4	..
Canterbury ..	1,253	68	1,179	55	70	14	46	6	17	6
West Coast ..	161	4	131	3	4	2	3	1	1	1
Otago ..	793	243	365	157	135	27	61	26	11	1
Southland ..	148	69	67	52	23	6	20	6	3	..
Totals ..	6,379	1,133	5,507	879	413	108	229	627	108	35

Thus 512 of a total of 644 infant deaths in the first month of life occurred during the first week, and may be regarded as mainly due to pre-natal influences. It is also of interest to record that well over half of the infant deaths (in the first twelve months of life) occurred in this first week—i.e., 512 in a total of 924.

TABLE 2.—SHOWING INSPECTION OF PREMISES ENGAGED IN SELLING OR MANUFACTURING FOODSTUFFS DURING THE YEAR ENDED 31ST DECEMBER, 1930.

Health District.					Number of Premises inspected engaged in the Selling or Manufacture of Foodstuffs.	Number of Instances Articles were "seized" or "destroyed."	Number of such Food Premises requiring Sanitary Alteration.
North Auckland ..	..	..	..	..	2,635	8	466
Central Auckland ..	..	..	..	..	1,393	60	238
South Auckland ..	..	..	..	..	2,210	12	184
Thames-Tauranga ..	..	..	..	..	536	..	111
Taranaki ..	..	..	..	..	590	16	66
East Cape ..	..	..	..	..	873	24	201
Wanganui-Horowhenua	..	..	..	..	340	94	29
Wairarapa-Hawke's Bay	..	..	..	..	284	..	3
Central Wellington ..	..	..	..	..	214	25	20
Nelson-Marlborough ..	..	..	..	..	518	2	37
Canterbury ..	..	..	..	..	870	1	5
West Coast ..	..	..	..	..	586	15	19
Otago ..	..	..	..	..	1,319	13	157
Southland ..	..	..	..	..	864	7	20
Totals ..	..	..	..	..	13,232	277	1,556

TABLE 3.—LEGAL PROCEEDINGS FOR YEAR 1930.

	Number of Prosecutions.	Amount. £ s. d.
Milk below standard	45	251 17 5
Milk, added water	47	358 15 0
Ice-cream below standard	3	17 3 10
Butter below standard	7	56 8 5
Spirits not true to label	9	124 4 11
Vinegar below standard	1	4 0 6
Cream below standard	3	17 9 6
Preservative in cream	1	5 3 6
Camphorated oil below standard	4	20 19 8
Food premises (Reg. H. 125)	9	29 2 6
Nuisance	4	5 15 6
Advertising	1	3 13 0
Breach of isolation	1	2 11 0
Plumbers Registration Act	2	4 1 6
Unregistered private hospital	1	2 11 0
	139	£903 17 3

SECTION 6.—ADMINISTRATION.

Reports received from the various Medical Officers of Health show a progressive improvement in the sanitary conditions generally throughout the Dominion.

My thanks are due to officers of the Division of Public Hygiene for a considerable reduction in administrative expenditure. That their individual efforts to that end must be sustained during the coming year is regretted but inevitable.

The Hawke's Bay Earthquake.—Officers from all parts of the Dominion rendered signal service as supernumeraries to the health and sanitary staffs of Napier and Hastings in restoring the sanitary services of the stricken towns, improvising sanitation in temporary camps and billets, abating nuisances of a most varied and unforeseen character, and particularly in measures designed to prevent the outbreak of disease. I am proud of their service: it was willing, strenuous, unostentatious, and effective. In the Gisborne district the Medical Officer of Health, Gisborne, and his district staff carried on unaided. At Wairoa particularly the damage was considerable, and the restorative work performed was strenuous and effective.

Food and Drugs.—The usual amount of routine sampling has been carried out, and the results indicate that, in general, no serious manipulation or adulteration of foodstuffs is prevalent. Thanks are again due to the Comptroller of Customs and the Dominion Analyst and their officers for valuable assistance and advice.

I desire to again express my appreciation of the continued loyal and able co-operation of the Medical Officers of Health and their staffs.

T. McKIBBIN,
Director, Division of Public Hygiene.

PART III.—SCHOOL HYGIENE.

I have the honour to report on the work of the Division of School Hygiene for the year ended 31st March, 1931. In accordance with request for brevity, only short reference will be made to activities more fully dealt with in previous reports.

STAFF.

The permanent staff consists of a Director, twelve School Medical Officers, and thirty-one school nurses, but owing to several changes during the year is not at present at full strength.

Dr. Keith, School Medical Officer for Nelson, was unfortunately compelled to retire on account of ill health, his resignation being received with great regret. Dr. Elizabeth Gunn left in December on a year's leave in order to go abroad. Dr. Kathleen Abbott has been acting very capably as relieving School Medical Officer since June. There have been several changes in the personnel of the School Nursing Service.

FIGURES RELATING TO WORK ACCOMPLISHED IN 1930.

The following summary serves to indicate the extent of work accomplished during the school period, February to December, 1930:—

Schools inspected—					
Of roll under 100	..	..	..	..	1,151
Of roll 100 to 500	..	..	..	..	367
Of roll over 500	..	..	..	..	154
					1,672
Children examined—					
Complete examinations	..	..	..	..	69,443
Partial examinations	..	..	..	..	38,465
					107,908
Number of notifications sent to parents	..	..	..	..	50,488
Number of addresses to school-children	..	..	..	..	690
Number of parents interviewed	..	..	..	..	12,804
Number of lectures or addresses to parents	..	..	..	..	40
The figures for the work of the school nurses are as follow:—					
Number of days assisted Medical Officer in schools	..	..	..	..	1,911
Number of children examined for medical schedule (H.-529)	..	..	..	..	102,263
Number of children re-examined after Medical Officer's inspection	..	..	..	..	48,760
Number of visits paid to homes in—					
Large towns	..	..	..	..	11,219
Small country towns	..	..	..	..	2,715
Scattered districts	..	..	..	..	2,082
					16,016
Number of children taken personally to hospital	..	..	..	..	663
Number of children taken personally to dental clinic	..	..	..	..	874

COMPLETE EXAMINATIONS.

Total number of children examined	..	66,596	Percentage of children, &c.— <i>continued</i> .	
Percentage found to have defects	..	73.48	Nose and throat—	
Percentage with defects other than dental	..	51.77	Nasal obstruction	.. 3.54
Percentage of children showing evidence of—			Enlarged tonsils	.. 15.62
Subnormal nutrition	..	6.3	Enlarged glands	.. 9.23
Pediculosis	..	1.47	Goitre—	
Uncleanliness	..	1.24	All degrees	.. 13.32
Skin—			Incipient	.. 10.98
Impetigo	..	1.9	Small	.. 2.05
Scabies	..	1.53	Medium	.. 0.24
Ringworm	..	0.2	Large	.. 0.04
Other skin-diseases	..	0.8	Eye—	
Non-vaccination	..	67.77	External eye-disease	.. 1.85
Heart—			Defective vision (total)	.. 3.48
Organic disease	..	0.6	Corrected	.. 1.68
Functional disturbance	..	1.12	Uncorrected	.. 1.8
Respiratory disease	..	0.8	Ear—	
Total deformities of trunk and chest	..	14.58	Otorrhoea	.. 0.32
Mouth—			Defective hearing	.. 0.42
Deformity of jaw or palate, including irregularity	..	3.39	Defective speech	.. 0.88
Dental caries	..	42.98	Mental—	
Extractions of permanent teeth	..	6.16	Feeble-mindedness	.. 0.33
Fillings	..	35.34	Epilepsy	.. 0.03
Perfect sets of teeth	..	3.8	Other nervous defects	.. 0.46
			Tuberculosis—	
			Total	.. 0.06
			Pulmonary	.. 0.03
			Other tissues	.. 0.03

These findings are in accordance with those of other years.

SCHOOL NURSES.

The work of the School Nursing staff as a whole is done with intelligence and interest. The placing of Miss Hodges in the Waikato has given a much better service for that area, as shown by greater local interest and improved treatment returns. The school nurses for Nelson (Misses Small and Fitzgerald) have carried on competently in the absence of a School Medical Officer. The association of school nursing-work and Red Cross activities in Taranaki continues to produce good results.

NUTRITION.

The number of children suffering from subnormal nutrition noted as the result of routine examination is 6.3 per cent., and it is for this group that special health measures are indicated. Dr. Anderson, in Hawke's Bay, notes an increased number of children suffering from nervous disabilities (habit spasm, night terror, &c.) since the Napier earthquake.

Since improvement in nutrition can be secured only by enlisting the co-operation of the parents, it is satisfactory to note that the percentage of parents attending at the medical examination of their children is steadily increasing. The work of the school nurses in visiting homes is also of importance, resulting, as it does, in a wider recognition of the principles of correct nurture. Through the medium of the press, the distribution of health literature, and health exhibits at various industrial and agricultural shows, health education is steadily progressing. There still remains an enormous amount to be done before a large group of mothers are capable of utilizing to the best advantage what facilities they possess. Poor cookery and bad choice of foods are responsible for a great deal of preventable malnutrition. The importance of the organized school lunch is stressed by various School Medical Officers.

Dr. Stevenson reports encouraging results from the open-air school (Fendalton type), Kew, Dunedin, for dealing with debilitated children and tuberculosis contacts. Dr. Henderson forwards a comprehensive report on the open-air school, Nelson Street, Auckland (roll No. 29), held under the auspices of the Community Sunshine Association. The children attending this school are those suffering from malnutrition, nervous debility, organic defects (as to heart or respiratory system), minor physical deformities, &c. The modified curriculum includes extra feeding, long rest periods, sunbathing. This school is a valuable asset to Auckland children.

HEALTH CAMPS.

Health camps for debilitated children were held during the year as follows:—

(1) *Wanganui District*.—One hundred and twenty-eight children attended the health camp at Awapuni, Palmerston North, for one month, Dr. Elizabeth Gunn being the Medical Officer in Charge. Dr. Gunn's interesting report gives uncontrovertible evidence of the success and great value of this camp.

(2) *Motuihi Island*.—As the result of a proposal by the Hon. the Minister of Health, a highly successful health camp for Auckland children (seventy-eight in number) was held at Motuihi Island in the month of January, 1931, by the Auckland Sunshine Association in conjunction with the Health Department. The Quarantine Station, lent by the Health Department, proved to be admirable for the purpose of the camp. The children chosen were those suffering from debility or malnutrition and tuberculosis contacts. Consideration was also given to the home circumstances when the selection was made.

(3) *Health Camp, Waiheke Island*.—Various members of the school nursing staff assisted the Community Sunshine Association in the holding of a camp at Waiheke Island, Auckland Harbour. This camp was primarily for pupils of the Sunshine School, and these benefited greatly.

Space does not permit recognition of all who gave generous assistance in the holding of these camps. The work of training-college students (Auckland and Wellington) is especially valuable from both educational and social aspects.

The following account of an investigation is of interest:—

"THE NUTRITIONAL VALUE OF MILK.

"Experimental Evidence from Maori School-children.

(H. B. TURBOTT, Medical Officer of Health, East Cape Health District; A. F. ROLAND, Head Teacher, Hiruharama Native School.)

"In recent years experiments have been conducted in Britain to determine the influence of milk upon nutrition of school-children. Dr. Cory Mann (1926), Dr. Orr (1928), Dr. Leighton (1929), Miss Clark (1929), and co-workers have demonstrated from English, Scottish, and Irish children that milk is one of the most valuable foods of mankind. Early in 1930, following routine examination of a Native school, it occurred to one of us (H. B. T.), after noting the prevalence of scabies, septic sores, and poor nutrition in this particular school, that milk-feeding of these children along the lines of the English experiments could not fail to be of benefit. With the hearty co-operation of the head teacher (A. F. R.) the experiment was initiated along community lines, departmental help being unsolicited.

"The Maori pa and community around Hiruharama Native School has not shown themselves particularly enterprising in the past, and this was an additional reason for undertaking extra work among them. The homes and meeting-houses were dilapidated, the community thriftless and poor. After much patient propaganda the Marae Komiti promised, if improvement of the children's health could be demonstrated, to undertake pa improvements thereafter. The Maori School Committee was co-opted, and the two Native committees undertook to supply cows and to pasture them. Initial difficulties over grazing, the intervention of Saturday and Sunday, trouble from cows jumping fences and returning home, were patiently overcome. The senior pupils in turn milked the cows twice daily, built a sledge at school, and a further boy was detailed to bring the milk to school. The Maori School Committee found the money for grazing rights; Mr. Keelan allowed the use of his shed and implements and supervised milking operations; Mr. Ngarimu provided one cow, also supplying horse and harness for daily use; Mr. H. T. Reedy gave ready help, while Mr. Eru Moeke supplied three cows. To all these Maori helpers, and especially Mr. Moeke, are we heavily indebted. The cows were healthy, tested animals.

"The milk was stored in a cool spot at school, covered with butter-muslin, until use. At 11 a.m. (play-time), and again at 12 a.m. (lunch-time), pupils were assembled and given their milk ration by individual cups. The primer classes were given 1 pint, and the standard classes $\frac{1}{2}$ pint daily, throughout the whole thirteen weeks of spring term, 1930. Physical measurements were recorded before milk feeding began, half-way through the term, and finally at the end of the thirteenth week. Height

was recorded to the nearest $\frac{1}{8}$ in.; weight was recorded in kilograms to two decimal places. The mean of two observations was taken each time, one observer (A. F. R.) recording height throughout, the other (H. B. T.) weight. Clothes worn were recorded at the first weighing, and the same quantity allowed to each child at the final weighing. Observations then were made by the same observers using the same instruments in the afternoon period each time. An attempt was made (A. F. R.) to assess mental intelligence before and after the experiment, Haggerty tests of educable capacity being used for the purpose in March and third week, December.

“In the test group ninety-three Maori children completed the milk-feeding course, children with less than 75 per cent. attendance not being included in this number. A control group of twenty-five Maori children at a neighbouring school just over three miles away, living, however, under similar conditions in the same district, were measured physically as above, but not tested mentally. In both groups the ages ranged from five to fourteen years.

“The result of the experiment was shown in—

“1. *Physical Improvement.*

“(a) *Measured by Height and Weight :—*

TEST GROUP, BY AGES.													
Age (years)	..	..	..	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
Number of children	..	..	..	14	10	9	11	7	6	10	8	12	6
Height (eighths)	..	..	..	6.2	6.4	7.7	6.6	6.2	8.0	7.0	5.1	5.4	4.1
Weight (kilograms)	..	..	..	1.33	1.08	1.61	1.74	1.54	2.08	2.00	1.91	1.52	1.76

All ages, Average.					Test Group.		Control.	
Number of children	..	..	..	..	93		25	
Height (eighths)	..	..	..	..	6.2		3.1	
Weight (kilograms)	..	..	..	..	1.65 (3.662 lb.)		0.66 (1.455 lb.)	

“The test group gained twice the height and two and a half times the weight of the control group. Half of the children, the younger ones, received 1 pint daily, this division between primers and standards occurring in group aged nine years. The elder children receiving $\frac{1}{2}$ pint daily did equally well, it seeming as though the quantity given was of secondary importance to the regularity. It will be noted as in a British experiment (Leighton, 1929) that ages twelve to fourteen gained less height and more weight than ages five to seven, while ages ten to eleven did best in the present experiment. The control-group gain was apparently average. For example, a five-fourteen group of Toronto children gained in three months 1 lb. 8 $\frac{3}{4}$ oz. weight, whereas these control Maori children gained 1 lb. 7 $\frac{1}{4}$ oz. in the same period.

“(b) *Measured by Improved Resistance to Disease.*—Before routine medical inspection of this school was begun, scabies, 40 per cent., and impetigo, 15 per cent., were rife. At the routine inspection, 1930, resulting from preventive efforts, and before the milk feeding began, the incidence had fallen of scabies 14 per cent., sores 5 per cent. After the experiment a further reduction to scabies 6 per cent., sores 3 per cent., was noted. Improved nutrition has helped the struggle against these troubles due to faulty home conditions. The same improved nutrition was responsible for improved attendance, the attendance regularity increasing markedly for the duration of the experiment.

“2. *Mental Improvement.*

“The school took part in the educable capacity survey of Native schools in March. Unfortunately, the Native school roll changes constantly, and a few of those tested in March remained in December. The results from these few seemed marked, even after discounting the fact that the same test was used on both occasions and the children had been some months longer at school. The teachers reported, apart from mental tests, that the children were brighter in every way. Test results are so few that no dogmatic statement can be made further than they seem to corroborate the evidence of physical improvement.

—				Number of Boys.	Number of Girls.	Total Score.	Highest Score.	Lowest Score.	Average Score.
Standard IV—March	..	..	..	1	3	139	52	24	34.7
December	..	..	..	1	3	309	104	56	77.5
Standard V—March	..	..	..	2	..	145	73	72	72.5
December	..	..	..	2	..	198	100	98	99.0

“*Summary.*—The head teacher of the school and the Maoris of this community are so pleased with the results of this experiment that they propose to put the milk feeding on an annual permanent basis. They intend to provide milk at school at least during the winter term each year. The milk rationing resulted not only in physical improvement judged by gain in height and weight and by improved resistance to disease, but also in improved mental alertness noted by the teachers, and seemingly corroborated by mental tests. The milk ration given regularly supplies missing constituents of the family dietary. The Maori diet is excessively carbohydrate. Milk may supply deficient protein, minerals, and vitamins, as suggested in recent Scottish study (Orr and Clark, 1930). However this may be, it is certain that milk has a very high nutritive value.”

TUBERCULOSIS.

The percentage of children found suffering from tuberculosis in the routine examination equals 0·06. The percentage noted suffering from subnormal nutrition (of whom a proportion have undoubtedly latent tuberculosis), is 6·3. Both of these percentages are slightly less than those noted last year. The work of following up and the examination of children who are tuberculosis contacts is gradually extending, there being now over 1,600 such children under observation. Wherever possible every effort has been made to secure close co-operation between the tuberculosis staff under the Hospital Board and the school medical and nursing staff. It is to be noted that in centres where this arrangement is possible School Medical Officers express much more confidence in the value of tuberculosis-contact follow-up work. This is because latent tuberculosis in children is not readily diagnosed unless special facilities are available. In Wellington, for instance, where Dr. Bakewell works in close association with Dr. Short, Tuberculosis Officer of the Wellington Hospital Board, the following result is found: T.B. contacts under observation, 494 (approximately 250 families); home visits to T.B. contacts, 639; schools visited (for weighing contacts), 87; children taken to tuberculosis specialist, 300 (approximately); children X-rayed, 53; evidence of tuberculosis, 21—of these 21, 17 showed Hilar gland changes and were treated by tuberculin inunction prescribed by Dr. Short, and the other 4 were admitted to hospital suffering from pulmonary tuberculosis; children taken to eye, ear, nose, and throat specialist, 20; to orthopaedic specialist, 11; convalescent home, 45; to the School Medical Office for special examination, 54; to the dental clinic, 28; to private doctors, 2; treated for skin-disease, 2. Dr. Henderson, Auckland, states, "The result of home visits is most marked in many cases, especially in regard to better ventilation of rooms, avoidance of overcrowding in bedrooms, proper feeding and in some cases, sleeping apart of patient and contact." The greater susceptibility of Maoris to tuberculosis is noted under section "Native Schools." The fact that this susceptibility varies in inverse proportion to the amount of European blood mingling with the Native is noted in the investigation by Dr. Turbott "Maori Susceptibility to Certain Infectious Diseases," published in the Appendix to this Report.

EXAMINATION OF NATIVE SCHOOLS.

The result of the medical examination of 882 Maori children is as follows: Number of children examined, 882. Percentage found to have defects, 84·01. Percentage with defects other than dental, 57·37. Percentage of children showing evidence of—Subnormal nutrition, 0·68; pediculosis, 12·59; uncleanliness, 0·45. Skin—Impetigo, 5·44; scabies, 9·64; ringworm, 0·11; other skin-diseases, 2·49; non-vaccination, 99·43. Heart—Organic disease, 1·7. Respiratory disease, 2·49. Total deformities of trunk and chest, 3·63. Mouth—Deformity of jaw or palate, including irregularity, 0·32; dental caries, 61; extractions of permanent teeth, 0·91; fillings, 11·9; perfect sets of teeth, 17·12. Nasal obstruction, 6·92. Enlarged tonsils, 22. Enlarged glands, 7·48. Goitre—All degrees, 6·4. Eye—Total defective vision, 3·28; corrected, 0·11; uncorrected, 3·17. Ear—Otorrhœa, 0·34; defective hearing, 0·45. Defective speech, 0·11. Tuberculosis—Total, 0·22; pulmonary, 0·11; other tissues, 0·11.

Many Maori children are examined as pupils of the ordinary primary school, but the result of their examination for the most part is computed with that of the European children. School Medical Officers speak with appreciation of the excellent work done by many district nurses and nurses to Natives. The work of the Native-school teachers is also of great value. From our observations it appears evident that for the most part Maori children attending Native schools receive more appropriate treatment than those attending the ordinary primary school. This is particularly so with regard to conditions associated with the observance of personal hygiene—*e.g.*, skin-disease, external eye-disease. In the Native schools health propaganda is devoted primarily to the needs of the Maori, and Native-school teachers often do admirable work in personally supervising or carrying out minor treatments such as for pediculosis and skin-diseases. This close supervision is absolutely necessary in order to obtain any result. Theoretical instruction with regard to health education is, for Maori children, largely wasted.

Scabies and pediculosis are still found to a deplorably great extent among Maori children, Dr. Mecredy's estimate being 27 per cent. of Maoris with scabies as against 1·4 per cent. European children, and 27 per cent. of Maoris with pediculosis as against 1·8 per cent. white children. Percentages from Native schools are definitely less than these, and probably indicate the value of supervision as stated above. Complaints from the parents of white children that their children are infected at school are unfortunately often too true, and point out urgent need for reform. Maori children, it is to be noted, suffer from infectious skin conditions much more during the winter, when there are greater herding together for warmth and fewer facilities for outdoor swimming. Scabies is not a problem at Rotorua, where hot sulphurous pools abound.

The Maori child shows superiority to the white in some characteristics which are almost certainly racial in origin. Posture among Maori children is superior to that of the white, though it is to be noted that the Maori foot, like that of other Native races, is flat in comparison with that of the white. The severest types of malnutrition are not met with as frequently in Maoris as in white children. The number of Maori children with perfect teeth is much greater than the number of white. Conservative dentistry is much more widespread among white children.

With regard to tuberculosis, the Maori is a readier victim (see also Dr. Champaloup's investigation into the incidence of tuberculosis among white and Native children, Annual Report, 1927). An interesting report has been forwarded by Dr. Turbott, Medical Officer of Health and School Medical Officer, Gisborne, on "Maori Susceptibility to certain Infectious Diseases," which will be found in the Appendix.

Henderson, School Medical Officer, Auckland, has made an interesting comparison between selected groups of white and of Native children as follows :—

“ *Maori Children attending Primary and Native Schools.*—Two groups of 363 children of each of the two races taken from country districts gave the following comparison of defects expressed in percentage :—

					European. Per Cent.	Maori. Per Cent.
Pediculosis	..	..	..	..	1.9	15.0
Skin impetigo	..	..	..	..	1.3	12.0
Heart-trouble	..	..	..	..	1.6	1.1
Scabies	..	..	..	..	1.1	16.7
Respiratory diseases	..	..	..	..	0.8	1.6
Postural deformity of trunk and chest	..	..	..	..	6.8	1.9
Bony deformity of trunk and chest	..	..	..	..	5.5	7.4
Dental caries	..	..	..	..	35.0	53.7
Nose and throat	..	..	..	..	11.0	11.0
Goitre	..	..	..	..	3.0	6.0
Otorrhœa	..	..	..	..	0.1	2.2
Defective hearing	..	..	..	..	0.1	1.9
External eye-trouble	..	..	..	..	1.37	11.8

“ Vaccination against smallpox was negligible in both groups.

“ Phimosis was more frequent among Europeans.

“ *Posture.*—Ninety-one per cent. of the Maori children had good posture and carriage (in spite of flat feet and knock-knee) as compared with 87 per cent. of Europeans.

“ *Feet.*—Out of 342 Maoris only 6 wore boots, and 3 of these had Hallux valgus, while over 90 per cent. of those wearing no boots had straight inner border of foot, 5.2 per cent. being pigeon-toed, and 2 per cent. having Hallux valgus. Out of 94 Europeans who wore boots only 6 had Hallux valgus, 2 pigeon toes, and the rest had a straight inner border. Flat feet (definitely flat)—European, 7 per cent. ; Maori, 66 per cent. Knock-knee (definite)—European, 15 per cent. ; Maori, 55 per cent.

“ *Tuberculosis in Family.*—Twenty-one per cent. of Maori children were said, on parents' information card, to have T.B. history in family. As only one case in 363 children showed definite physical signs of pulmonary tuberculosis, it would appear that the infection is not active during school age to any extent. On the other hand, in absence of reliable information, it is possible that other respiratory complaints may have been credited by the parents as tubercular.

“ *Congenital Syphilis.*—European, 0 ; Maori, 1.2 per cent.

“ *Scarlet Fever.*—This is said to be rare among full-blooded Maoris. One case was met with in a girl of twelve years and a half, a full-blooded Maori. Desquamation of palms, together with previous and subsequent history, left no doubt in my mind as to diagnosis.

“ A more intensive comparison in regard to some points of nutrition and physique was made between groups of Europeans and Maoris aged nine and ten years—Ninety-four Europeans and seventy Maoris—average age, nine years and a half. The Europeans were selected from rural districts. The age nine-ten was selected to avoid adolescent nutrition and posture on the one hand and “ baby ” posture on the other.

					European. Per Cent.	Maori. Per Cent.
Nutrition—						
First class	..	..	..	..	45.7	60.0
Second class	..	..	..	..	45.7	35.4
Third class	..	..	..	..	8.5	4.3
Posture—						
First class	..	..	..	..	94.6	84.3
Second class	..	..	..	..	4.2	11.4
Third class	..	..	..	..	1.01	4.3

“ *Chest-development.*—Average, in centimetres : Inspiration—European, 65.5 ; Maori, 66.8. Expiration, European, 59.8 ; Maori, 62.05.

“ It was found more difficult to get the Maori child to fill and empty the chest satisfactorily, so probably the mean between inspiration and expiration is better gauge.

				European.	Maori.
Average mean	..	..	..	62.6 cm.	64.4 cm.
Knock-knee	..	..	..	18.0 per cent.	65.7 per cent.
Flat feet	..	..	..	6.4 per cent.	84.2 per cent.

“ *Wearing of Boots.*—Eighty-five Europeans and thirteen Maoris wore boots, but this does not appear to have contributed much to deformity of feet at this early age, only 5 cases of Hallux valgus (4 Europeans, 1 Maori) being noted. The others had a straight inner border of foot. Among the 57 Maoris who wore no boots were 3 cases of pigeon toe and 1 of Hallux valgus. Nor did the wearing of boots eliminate flat feet among the Maoris.”

The following parallel findings sent by Dr. Turbott are also of considerable interest.

"The comparative health of Maori and white children as judged by routine school examinations is readily seen from the following table, the results being given as rate per 1,000 children seen :—

	Maori.	White.
Heart—Organic disease	12·8	12·6
Respiratory disease—Unhealthy chests	23·3	11·2
Physique—		
(a) Nutrition—		
First class	60·1	275·6
Subnormal	7·2	11·2
(b) Total deformities, trunk and chest	29·3	51·9
(c) Poor posture	6·4	22·9
Pediculosis	157·9	11·2
Skin conditions—		
(a) Scabies	99·9	5·0
(b) Septic sores and impetigo	64·3	24·9
(c) Other skin-diseases	14·0	50·4
Vaccination performed	20·2	25·5
Dental hygiene—		
(a) Defects in jaw or palate	0·8	3·7
(b) Perfect sets of teeth—		
Primary	36·2	15·9
Secondary	108·9	9·7
Enlarged tonsils	208·5	359·0
Enlarged cervical glands	89·3	195·6
Goitre—		
Incipient	41·8	261·8
Small	4·8	9·6
Medium .. .. .	..	2·0
Large .. .. .	..	1·0
Total	46·6	274·4
Special senses—		
Ears—		
Deafness	4·0	4·6
Otorrhœa	4·0	4·0
Eyes—		
(a) Conjunctivitis	14·6	5·6
(b) Squints .. .. .	..	..
(c) Defective vision	28·1	64·1
Hernia	3·6	4·6
Phimosis.. .. .	..	2·05

In considering the above returns comparatively it is necessary to take into account not only the personal equation of the observer, but the fact that they refer to groups of Maoris in different environments. A large percentage of Dr. Turbott's Maoris are near the sea-coast and lead lives modified accordingly.

SCHOOL BUILDINGS.

The subject of school buildings was dealt with fully in the last annual report. The reports from School Medical Officers will be referred to the Education Department in order that they may be considered in the education districts concerned. The circular "Suggestions to School Committees and Teachers *re* the Cleaning and Sanitation of Schools" has been revised.

OPEN-AIR SCHOOLS.

Each year shows a substantial increase in the number of open-air schools erected. These vary in type in different educational districts, and space forbids discussion as to their relative advantages. The Fendalton type, inaugurated by Dr. Phillipps, which was responsible for creating much of the Dominion interest in open-air schools, continues to hold its own, especially in Canterbury. It is all to the good, however, that keen and widespread interest is focused upon the subject. Observations with regard to school conditions prevailing in various seasons, school attendances, &c., are being recorded and should be of value for future guidance.

FREE KINDERGARTENS.—EXAMINATION OF THE PRE-SCHOOL CHILD.

Medical examination of children attending the free kindergartens throughout the Dominion is now undertaken by the School Medical Service. Approximately twenty free kindergarten schools were examined last year. School Medical Officers speak appreciatively of the capability and enthusiasm of kindergarten-teachers and of the instruction in health matters given by them.

that, owing to the incorporation of the result of these examinations with the findings for children, we are unable this year to furnish a record for all kindergarten children examined. The percentage of defects found does not differ greatly from that noted in children entering the primary schools. Dr. Elizabeth Gunn, of Wanganui, held throughout the year an advisory clinic for pre-school children. In Christchurch the children attending St. Andrew's free kindergarten continued to benefit from regular sun-bathing under the supervision of Miss Cora Wilding, Dr. Philipps being medical referee.

MEDICAL EXAMINATION OF APPLICANTS FOR ENTRANCE INTO TEACHING PROFESSION.

Medical examination of applicants for entrance into the teaching profession was again carried out. The physical condition of applicants has been dealt with in previous reports. Reports of School Medical Officers this year will be referred to the Education Department for transmission to the various education centres. The questionnaire submitted to candidates for obtaining information regarding daily routine of pupils at secondary schools—*e.g.*, hours of study, rest, sleep and recreation, &c.—will also be forwarded to the Education Department for consideration.

PHYSICAL EDUCATION.

Every effort is made to co-operate with the physical instructors of the Education Department. Considerable difficulty exists, however, in establishing special remedial classes for postural defects owing to the limited staff available at primary schools, headmasters finding it impossible to allocate a teacher for this purpose. It is practically impossible under existing conditions to obtain assistance from the special training in physical education undergone by third-year training-college students.

GOITRE.

Routine examination gives an incidence of 13·3 per cent. On the West Coast Dr. McLagan notes definitely higher incidence in goitre than in Buller district.

Dr. Stevenson, of Dunedin, has forwarded some interesting observations on the subject of "The Incidence and Treatment of Flat Foot."

MENTALLY BACKWARD CHILDREN.

A considerable amount of work has been done in association with the Education and Mental Hospitals Departments since the passing of the Mental Defectives Amendment Act, 1928, in arranging for the expert examination of various groups of problem children (feeble-minded, delinquent, &c.), and in recommending provision, institutional or otherwise, suitable for their needs.

The School Hygiene Division wishes to express appreciation to the Education Department, Mental Hospitals Department, various Education Boards, School Committees, and teachers for much valuable co-operation.

A. G. PATERSON,
Director, Division of School Hygiene.

PART IV.—HOSPITALS.

The outstanding work of the year just closed was the earthquake in Hawke's Bay. Enough has been written and recorded about the calamity elsewhere, but the chief feature from my point of view was the disastrous result to the hospital. This was wholly put out of action, and a temporary hospital was established at the Napier Park Racecourse. The number of patients here was at all times kept down to a minimum by transferring patients to hospitals in other districts. The establishment was looked upon as being merely temporary, so when the first rush was over the question of finding another and more suitable site for a temporary but at the same time a more permanent type of hospital was considered.

After various schemes had been investigated it was decided to make use of the wooden T.B. shelters on the old hospital-site as a nucleus. This was done, and as soon as possible the Napier Park Hospital was closed.

A temporary hospital was also in existence at Hastings, and the staff of Royston Private Hospital rendered valuable service in this institution. An experience such as this earthquake is unique in the hospital history of the country, and it speaks volumes for those concerned that as far as I am aware no instance of lack or even delay of treatment of the many injured occurred.

The question of reinstating the permanent hospital facilities of this district is under discussion, but at present with the facilities available locally plus the assistance of neighbouring Hospital Boards, a reasonable number of beds is available.

Wairoa Hospital.—The effects of the earthquake here were also very severe, the Nurses' Home, in particular, suffering considerable damage. In the hospital buildings only minor damage was done. It will be necessary to demolish the Nurses' Home down to the foundations.

Waipukurau Hospital.—Some damage was also done to the institution, and strengthening and repair work will be necessary.

Palmerston North Hospital.—Earthquake damage here is largely confined to the upper story of the kitchen block. This will require bracing and strengthening.

The following are extracts from the annual reports of the Medical Superintendents of the departmental institutions :—

Queen Mary Hospital, Hanmer Springs.

"There has been the greatest endeavour made during the whole year to reduce the expenditure of the institution and to economize in every possible direction. At the same time an effort has been made to maintain the essential efficiency of the hospital. Very considerable reduction both in staff and expenditure has been effected.

"Women's Hospital: This section of the hospital has remained fully occupied, and conditions continue to be satisfactory, excepting that at times there has been some overcrowding.

"Male Hospital: There has been considerable lessening in the number of patients presenting for admission, this being partly due to conditions external to the hospital. Some improvements have been effected by the opening-up of further single rooms, which have proved both satisfactory and profitable to the institution.

"Nursing Staff: There have been comparatively few changes in the nursing staff during the year, excepting that there has been a considerable reduction in the number of sisters and hospital aids employed.

"Massage Section: General conditions are much improved with the opening-up of the new massage block and bath-house. Both have proved very adequate. The staff in this section has been reduced, and the work is proceeding fairly satisfactorily.

"Electric-light Service: There has been considerable difficulty during the year, owing to the lack of sufficient electric power, but with the installation of the new standby plant our difficulties should be overcome, and an extra amount of power should be available for sale to the public. There is no doubt that the sale of electric power has proved a profitable service, but the shortage is a source of continual anxiety.

"Grounds and Public Gardens: The grounds and public gardens of the institution have been well cared for, and the general appearance is satisfactory.

"Farm: I have had no difficulty with the supply of milk, and the management of the farm appears to be satisfactory and profitable to the institution. The farm staff has been reduced to an absolute minimum, and a considerable amount of work has been done by the patients.

"Medical Staff: During the year Dr. Lumsden was transferred to Pukeora Sanatorium, and Dr. Moller resigned to take a position at the Christchurch General Hospital. Dr. Tovey was appointed to Dr. Lumsden's position.

"Dental Service: Mr. Arthur Suckling, honorary dental surgeon, paid several visits to the institution, and his services have been of the greatest value to the patients and of considerable assistance to the medical staff.

"Red Cross: The Red Cross continues to maintain the recreation-rooms, and give cinematograph entertainments to the patients. The service given by the Red Cross is much appreciated by the patients, and proves a very useful adjunct to the amenities of the hospital.

"I have received every help from the senior members of the staff in an endeavour to obtain an economic working, and extra work has been undertaken by them to make up for the reduction in the numbers. A considerable saving has been achieved both in general expenditure and by reduction in the numbers employed."

King George V Hospital, Rotorua.

"Of the 934 patients under treatment in the wards during the year, 205 were Maoris, 93 were orthopaedic, and 19 were service patients. The past year has been marked by the closing-down of the orthopaedic department. The demands on this department in respect of infantile-paralysis patients have gradually decreased as the date of the epidemic has receded. The work done in that department has changed largely in recent years to the treatment of conditions such as congenital deformities and complicated fractures. The number of general patients has been well maintained, with the exception that there has been a lower incidence of infectious diseases in the district to be dealt with. On the other hand, an extensive use is being made of the accommodation provided for maternity cases. The total number of patients treated approximates very closely to the number treated when the orthopaedic services were in full operation. A further concentration of the hospital services has been brought about with an added efficiency in the working of the institution and a marked lessening in the running-costs. Steps have been taken for the disposal of surplus stores and buildings. The reconditioning of the roofs of the wards now in operation and the repairs to roads and paths remain an urgent necessity."

Pukeora Sanatorium, Waipukurau.

"General: During the past year 264 patients were treated; 117 cases were discharged relieved, 24 discharged unrelieved, and 2 have died, both of which were advanced cases unlikely to benefit by sanatorium treatment. The number of patients at the beginning of the year was 120, and at the end of the year 121.

"Admissions: It is somewhat pathetic to see the sort of case frequently sent here as 'likely to benefit by Sanatorium treatment.' It would appear as if some other form of selection will have to be devised, as the reports received prior to admission do not always afford sufficient evidence of the suitability or otherwise for sanatorium treatment.

"It is cruelty for patients to arrive here full of hope, and then to be sent away unimproved. They know that it is equivalent to signing their death warrant, however one may try to soften the blow by suggesting a change of climate, &c. There is, in addition to this, the psychological effect on the other patients, who discuss with bated breath the departures of those sent away unimproved.

"Dental: Some Hospital Boards are careful with regard to providing adequate dental treatment before arrival, but some are not so careful. Oral sepsis is only too common, and frequently retards patients very considerably. Hospital Board Secretaries who are on the look out for saving their Boards any undue expense should see that their cases for sanatorium treatment have adequate treatment prior to leaving for the sanatorium.

"The same applies to nose and throat treatment, some of which should be seen to before patients are sent here. If possible, all patients should be seen not only by a dentist, but also by a nose and throat specialist, who may possibly adopt temporary measures for relief of throat and nose troubles. Even temporary relief helps considerably, and, by reducing the days' stay in the sanatorium, it will reduce the expense to Hospital Boards.

"Treatment: This is mainly on sanatorium lines, pure and simple. The adjuncts used are acriflavine for bronchitis, tuberculin ointment and unguents, and Solganol B., a gold preparation by Schering. The Solganol B. seems to be of definite value in cases which have a good resistance, and in which the sputum is persistently positive. Quite a number of cases who have had injections of Solganol B., have become negative, despite frequent positive tests prior to commencing the injections. Latterly the course has been spread over a much longer period, injections being given every two or three weeks instead of at weekly intervals, and the results seem better. A report is being prepared on the results of Solganol B., and will be sent to the Department within a short period.

"Earthquake: A considerable amount of damage was done by the disastrous earthquake of the 3rd February, 1931, both to institutional property and to property belonging to members of the institution staff. Every chimney in the institution either came down at the time or was so badly damaged that it had to be rebuilt at a subsequent date. The Sanatorium was able to help in the relief work, by sending on supplies of drugs, &c., and affording a break in the journey between Napier and Wellington.

"Kitchen Staff: The male cooks have been replaced by female cooks, and the cuisine has improved considerably. The new staff are also cooking for the Nurses' Home. A very considerable saving has thus been effected, as the result of the reduction of staff and salaries.

"Male Staff: I must thank all members of the male staff for their assistance, more especially lately, when the work has been increased by the destruction and upset due to the recent earthquake.

"Nursing Staff: The nursing staff has been most loyal, especially in the trying time since the earthquake, when we had a considerable accession of cot cases—some of them very ill—from the Waipukurau and Napier Public Hospitals. Some of them have gone, but there are still quite a few remaining. The number of cot cases has been very large ever since February, and the work of the nursing staff has been very heavy. I have to thank them all, sisters and hospital aids, for their loyal co-operation.

"X-ray Department: This department has proved most useful not only for diagnosis, but also for estimating progress. All cases are screened, and a considerable number photographed. It has also been used for general X-ray work, especially the taking of nasal sinuses: barium meals and other examinations have also been done.

"Red Cross and Vocational Classes: No praise is sufficient for the Red Cross Society and its branches in and around Waipukurau in its efforts to make life pleasant for the patients. Comforts such as cakes, fruit, &c., are provided, concerts given, and a supply of cinematograph films is assured. In addition, the Red Cross instructress teaches needle-work, leather-work, basketwork, &c., and this helps in the 'cure' by a method which is pleasant and profitable."

Otaki Sanatorium, Otaki.

"During the year 84 patients were admitted, of these 4 had been away for short periods, necessitating readmission; 86 were discharged—4 temporarily for hospital treatment or home reasons.

"After-history reports of the 86 patients leaving the institution—

16 still under treatment.

19 disease quiescent—doing light work.

33 disease quiescent—doing definite work.

10 dead.

8 no information yet.

"In comparison with last year advanced cases have not been so evident, and early cases have been superseded by a more advanced type—3 early cases; 32 comparatively early; 35 moderately advanced; 7 advanced; 1 abdominal tuberculosis; 2 arrested, though showing evidence of moderately severe trouble.

“Collective days’ stay of patients for the year, 10,764; averaging daily stay, 134, showing a decrease from last year. This is accounted for by the fact that more patients were anxious to continue treatment at home under good conditions and chiefly for financial reasons.

“Among the treatments tried, that of the administration of nascent iodine has given the most satisfactory results.

“Farm Report: The working of the farm has been satisfactory.

“The ornamental grounds at all times look most attractive, adding to the pleasure of the patients. The outside staff performed their duties efficiently and conscientiously.

“The institutional staff have given their best services with co-operation and good will.

“Throughout the year the patients have deeply appreciated the moving pictures provided so conscientiously by Mr. Morse. We regret his departure from Otaki, and are much indebted to Mr. Richards, who has generously come forward with his services in this connection.”

FINANCIAL.

During the year just commenced, the financial resources of the Department are so limited that it will be only by the exercise of the strictest economy that a balanced budget will be presented at the close of the year. The Department confidently anticipates that all Hospital Boards and their administrative staffs will whole-heartedly co-operate in achieving this end. It spells a strenuous time for all.

R. A. SHORE,
Director, Division of Hospitals.

PART V.—DENTAL HYGIENE.

I have the honour to submit the following report on the work of my Division for the year ending the 31st March, 1931 :—

SECTION 1.—STAFF, ETC.

The staff of the Division now consists of sixteen Dental Officers and 202 dental nurses, disposed as under: In the field, nine Dental Officers and 128 dental nurses; in training, seventy-three probationer dental nurses, thirty-six of whom will become available within the next few weeks for staffing school dental clinics in various parts of the Dominion. The remaining thirty-seven are in the second year of their training.

New Appointments.—The appointment of twenty additional probationer dental nurses has been approved, and is being proceeded with. These will enter the training school in April, 1931. The number has been reduced from forty to twenty this year on account of the financial stringency.

Treatment Centres.—At the end of the period under review (31st March, 1931) the School Dental Service was established at 174 centres. Of these, 110 are main treatment centres and sixty-four are sub-bases.

Training of Dental Nurses.—At the commencement of the year under review (1st April, 1930) there were seventy-eight probationer dental nurses in training. Of these, thirty-nine were in the first year of their training, and thirty-nine in their second year. During the year these numbers have been reduced to thirty-seven and thirty-eight respectively.

Dr. Ada Paterson and Dr. F. S. Maclean were the examiners for the Primary Examination (Anatomy and Physiology), which was held in October, 1930. Of the thirty-seven candidates, all but three were successful in passing this examination.

The final examination was held on the 9th, 10th, and 11th March, 1931, the examiner being Mr. Millen Paulin, B.D.S., assisted by a member of the instructional staff. Thirty-four passed this examination, and four more will sit again at a later date.

Inspection and Supervision.—This work is in the hands of Mr. R. D. Elliott (North Island) and Mr. F. B. Rice, B.D.S. (South Island). These officers are responsible for the efficiency of the clinics within their respective districts and for maintaining the necessary liaison with dental clinic committees.

Statistics.—(a) Operations performed in the field and in the training-school from 1st January to 31st December, 1930 :—

Fillings—				
Permanent teeth	..	..	..	89,283
Temporary teeth	..	..	..	169,263
Extractions	..	..	..	75,973
Other operations	..	..	..	128,685
Total operations	..	..	..	463,204

(b) Number of schools under systematic treatment, 930.

(c) Number of children receiving systematic treatment, 67,652.

The following is a comparison between the figures for 1929 and those for 1930 :—

Year.				Number of Schools under Systematic Treatment.	Number of Children receiving Systematic Treatment.	Total Number of Operations.
1929	..	..	..	775	62,100	370,074
1930	..	..	..	930	67,652	463,204

The total number of operations performed since inception of the Service, 2,132,509.

SECTION 2.—DENTAL HEALTH EDUCATION.

This matter continues to receive the close attention of all officers and nurses of this Division. Modern research has amply proved that dental disease is, to a great extent, preventable, and every opportunity is taken of instructing both children and parents in the fundamental principles of dental hygiene. The interest shown by teachers in supervising the children's lunches is a pleasing feature of this aspect of the work. It is very gratifying to find that so many parents take a keen and practical interest in the teachings of the Department, with the result that the dental standard of their children steadily improves. This is evidenced by a decrease in the amount of recurrent treatment required during successive years. Unfortunately, there are still some parents who fail to realize their responsibility in this matter. They allow their children to attend the clinics for treatment, but they fail to take any active steps on the lines indicated by the Department to preserve the teeth and prevent dental disease. In consequence, no diminution is apparent in the amount of treatment required at successive periodical inspections. A continuance of treatment in such cases is not warranted.

During the year much has been done to bring the principles of dental hygiene to the notice of children and parents. Apart from chair-side instruction and the distribution of literature, many talks have been given by dental nurses to classes in the schools, and many addresses have been given to meetings of mothers of patients and to various women's organizations.

During the year a series of five lectures was given over the air by Mr. Bibby, Mr. Brice, and myself at the invitation of the Radio Broadcasting Co. of New Zealand.

As in previous years, the trained nurses' post-graduate course arranged by the Department included a series of lectures on dental hygiene by officers of this Division. Engaging as they do in various forms of public-health work, these nurses come into close touch with both parents and children, and, though primarily concerned with general health problems, their work must ultimately result in a higher standard of dental health as well.

SECTION 3.—GENERAL.

Policy.—In connection with the opening of new clinics, the policy of definitely arranging beforehand the schools that will form the dental group has been continued with marked success. Experience has shown that there is a period, usually in the second year after the opening of a clinic, when the officer in charge is temporarily short of work. If the natural inclination to undertake fresh commitments at this stage were followed there would be a serious overloading of the group at a later stage, with the inevitable result that the regular treatment of individual children would suffer. The practice has been adopted, therefore, of temporarily transferring dental nurses at this stage to centres where assistance is required. The services of the limited staff available are thus used to the best advantage. In these cases the nurses return to their own clinics and resume regular and systematic treatment at the normal time.

Hawke's Bay Earthquake.—The school dental clinics at Napier, Hastings, Wairoa, Gisborne, and Waipawa suffered damage to a varying extent as a result of the disastrous earthquake on the 3rd February, 1931. The most serious damage occurred at Hastings, where the clinic was housed in a brick building. The structure was wrecked, and I regret to say that the dental nurses who were stationed there were both injured. The work of the Service has of necessity been discontinued in the meantime at both Napier and Hastings, but it will be resumed as soon as suitable accommodation can be arranged. At the other centres the work suffered only temporary interruption. I am pleased to be able to report that the conduct of all the dental nurses in the affected centres won high commendation, and was in keeping with the best traditions of this Department.

I would take this opportunity of acknowledging the valuable co-operation of Dental Clinic Committees throughout the Dominion in carrying on the work of the Service in the various districts. Members of the teaching profession have shown their wonted enthusiasm for the work of the clinics, and their assistance in many different directions is gratefully acknowledged. Education Boards and their staffs have again done much to facilitate the work of the School Dental Service.

Finally, I wish to acknowledge the splendid service rendered during the past year by all officers of this Division. The officers of my executive and training staffs have carried out their duties with ability and enthusiasm, and this also applies to the dental officers and dental nurses in the field.

J. LL. SAUNDERS,

Director, Division of Dental Hygiene.

PART VI.—NURSING.

I beg to submit my annual report for the year ending 31st March, 1931.

NURSES AND MIDWIVES REGISTRATION ACT, 1925.

The two general nursing examinations held in June and December resulted in 325 out of 382 candidates being successful. From overseas nineteen nurses were admitted to the register.

The system of affiliation between large and small institutions foreshadowed in my last year's report is now happily an established fact, amending regulations having given the Board power to classify the training-school into two grades—Grade A, being competent to undertake the complete course of training, and Grade B, which may give a partial training, the remaining portion to be carried out in an improved Grade A hospital. Already several Hospital Boards have arranged affiliation along these lines, and the result should be a more uniform standard of nursing throughout the country.

In the four examinations held during the year for the State registration of midwives, 128 were successful while four were admitted from overseas. At the same time examinations for maternity nurses resulted in 177 being added to the register.

The new regulations requiring a lengthened period of training for midwives and maternity nurses have caused considerable difficulty of adjustment in the various training-schools, but these are being gradually overcome.

The work in the office has been enormously increased owing to the large amount of correspondence and also to the fact that an extra examination had to be arranged in order to lessen any undue hardship during the transition period. It is hoped, however, that at the end of 1931 it will be possible to hold two examinations only—in June and December.

NURSES AND MIDWIVES REGISTRATION BOARD.

There were four Board meetings held during the year.

Personnel.—The personnel of the Board has been increased by the Nurses and Midwives Registration Amendment Act, 1930, to include a representative of the Hospital Boards and an additional representative of the nursing profession, the members now being, Dr. M. H. Watt (Chairman), Dr. W. Young, Miss E. P. Tennent, Miss H. Newman, Miss R. Muir, Mr. W. Wallace, and Miss J. Bicknell (Registrar).

TRAINING OF MIDWIVES AND MATERNITY NURSES.

Training-schools.—During the year the Board decided to restrict the training of midwives entirely to the St. Helens Hospitals in Auckland, Wellington, Christchurch, and Invercargill, and to approve of all other training-schools which had previously trained midwives as training-schools for maternity nurses only.

Course of Training.—It was also decided to lengthen the course of training required of both nurses and untrained women undergoing training as maternity nurses and midwives; and, as a result of this decision, the regulations were amended to provide that (a) the course for general trained nurses training as maternity nurses shall be six months; (b) for untrained women training as maternity nurses, eighteen months; (c) for all registered maternity nurses training as midwives, six months.

Training-schools for Nurses.—During the year the Board has given lengthy consideration to the qualifications of the various training-schools for nurses, and, as an amendment to the regulations allowed the Board to stipulate the period of training which could be given in Grade B training-schools (instead of limiting it to twelve months as previously), the Board has regraded a considerable number of hospitals as B grade training-schools, therefore requiring any trainees in these schools to spend a certain amount of time in larger training-schools, thus generally improving the practical experience obtained by trainees in some of the smaller training-schools.

Appointment of Examiners.—The list of medical practitioners and nurses appointed as examiners under the Nurses and Midwives Registration Act, 1925, was considerably added to during the year.

Inspection of Training-schools.—The Board obtained the service of an officer of the Department to make an inspection of a number of the training-schools for nurses, and to report direct to the Board from the standpoint of the institutions as training-schools; the result of which has been that in several of the hospitals the teaching equipment is being largely augmented and other improvements made.

POST-GRADUATE COURSE FOR NURSES.

The 1930 post-graduate course opened with fifteen students; of these six had bursaries from various Hospital Boards, one from the Health Department, and the remainder came at their own expense; thus the proportion of nurses who have realized the importance of further training and have been willing to save to take this course has been maintained.

The course of lectures and practical experience followed that of previous years, the practical aspect being further strengthened particularly in the subjects of bacteriology, dietetics, and practice teaching. The excellent co-operation given by the Wellington Hospital Board and its staff has been of the greatest assistance in this matter.

A further evidence of this desire of the Hospital Board to help was shown in that special quarters—formerly the old massage department—were granted. This has meant that within their own building the Nurse Instructors and students have their own class-rooms and library, adding considerably to their comfort and the ease with which the classes can be arranged.

The reports from all the lecturers, including those from Victoria University College, were again a great encouragement to those interested in nursing education. All spoke of the close and attentive work done, combined with, in many instances, marked ability for independent thought. The general standard was on the whole excellent. Unfortunately, owing to the large amount of extra work devolving upon officers of the Department following on the disaster at Napier, and to the acute financial depression of the country, it has been considered advisable to postpone the post-graduate course for 1931. I hope, however, that lectures will be resumed in 1932. This course became possible only after many years of striving, and if New Zealand nursing is to keep pace with what is being done in other countries it is essential that it should continue. The course has more than justified its existence, and now that Hospital Boards as well as nurses themselves are alive to its value it would be exceedingly regrettable if anything should occur to prevent its resumption next year.

HAWKE'S BAY EARTHQUAKE.

The disastrous earthquake in Hawke's Bay on the 3rd February threw seventy-four pupil-nurses of the Napier Hospital out of employment. The task of placing these girls in other hospitals where their training could be continued from the point at which it was broken off devolved upon the Division of Nursing. I am glad to be able to report that, thanks to the most willing co-operation of the Hospital Boards throughout the Dominion and their administrative officers, over sixty were either placed or arranged for within a month after the catastrophe. Of the remainder several decided against continuing their training, and others are not yet sufficiently recovered from their injuries to take up duty. The thanks of the Department are due to the Boards for their very valuable assistance in this direction. It has frequently meant a certain amount of inconvenience to the Matron and her staff to fit in partially-trained nurses from another hospital instead of carrying out the routine training from the beginning. It has also entailed a certain amount of hardship to waiting applicants whose entrance had to be deferred—though only for six months in the majority of cases. The McHardy Home Maternity Training-school having been put out of commission at the same time, the pupils undergoing training there had also to be found places. Some have since completed their course, and passed with honours the State examination held on the 18th and 19th February.

UNEMPLOYED NURSES.

The amount of unemployment among trained nurses is becoming a serious problem. There is no doubt that we are training a far greater number than can be absorbed by this small country, and during the present world-wide depression there is no outlet in other countries as has been the case for some years past. Our nurses have ever since the Great War been eager to seek their fortunes in other lands; and, knowing the widening influences of travel for the inhabitant of a small and isolated country, I have always encouraged them to do so. This avenue is now indefinitely closed to them, and it would appear that in the future it may become necessary for Hospital Boards to consider the question of employing a larger proportion of trained staff.

The cost of buildings could be materially reduced, for a proportion of the trained staff could live out and attend daily for the specified hours of duty, as do women in other walks of life. With a number of girls undergoing training the case is entirely different. They must for their own protection be under supervision and guidance until they have attained a measure of self-reliance and stability.

At the present moment the United States is suffering from a surplus of trained nurses, and an investigation is being carried out in order to find some means of overcoming the difficulty and of improving the standard and distribution of nursing services. It is there suggested that a larger proportion of trained nurses would result in more skilled nursing of the sick and more efficient training of the pupil. An inquiry of somewhat similar nature is being held in England, so it will be seen that the question is a very real one.

ST. HELENS HOSPITALS.

The St. Helens Hospitals, as indicated above, have been going through a difficult period owing to the changes instituted in regard to maternity and midwifery training. This has been aggravated by the economic conditions in the country causing a larger number of mothers wishing to avail themselves of the services of these hospitals.

Improvements in regard to hours of duty have been instituted, though it is not possible to have a schedule, as in the general hospitals, as the type of work in a midwifery hospital is so different. To obtain the necessary experience for her training a nurse's hours must vary somewhat.

DISTRICT NURSES TO MAORIS.

There have been various changes in this service. Two of our nurses having married during the year. There are now twenty-one districts provided with a nurse, while a relieving nurse is stationed in Auckland City.

On the eve of my retirement I should like to place on record my deep sense of gratitude for the willing co-operation of those associated with me in my work in the Department during my twenty-four years' service, particularly my immediate associates in the Nursing Division, who have so whole-heartedly supported any efforts made for the improvement of nursing conditions. It is gratifying to realize that they will carry on the good work, bringing to the task younger brains and expert knowledge.

To yourself, Sir, I should like to express my thanks for your fair-minded attitude at all times and for the assistance you have so readily given me in any difficulties.

J. BICKNELL,
Director, Division of Nursing.

PART VII.—MATERNAL WELFARE.

REPORT OF THE INSPECTOR OF PRIVATE AND MATERNITY HOSPITALS.

T. L. PAGET, L.R.C.P. (Lond.), M.R.C.S. (Eng.).

I have the honour to submit my annual report for the year ended 31st March, 1931.

REPORT ON HOSPITALS.

The general development of a higher standard of convenience and efficiency in the 350 hospitals under my inspection continues to be satisfactory.

In addition to the public hospitals for general medical and surgical cases controlled by Hospital Boards, New Zealand is served by the following hospitals: Seven St. Helens Hospitals providing 121 beds for maternity cases; seventy-six public maternity hospitals or maternity wards attached to public hospitals providing 506 beds; 274 private hospitals providing 873 maternity beds and 1,385 medical and surgical beds.

Of all these hospitals, eighty-nine are solely medical and surgical hospitals; 194 are solely maternity hospitals; seventy-eight are classed as mixed hospitals, and admit both maternity and medical and surgical cases under certain restrictions. This group of hospitals does not include the general hospitals, which, although not having recognized maternity departments, are occasionally forced to admit normal maternity cases for their confinements and also admit a considerable number of abnormal cases, particularly cases of puerperal septicæmia from other hospitals.

Private Medical and Surgical Hospitals.—The private hospitals licensed to receive only medical and surgical cases continue to maintain a sufficiently high standard of equipment and general convenience for this class of work. The conduct and management of the large majority of them leaves little to be desired.

Private and Public Maternity Hospitals.—Table I gives a statistical summary of the work done in the 270 hospitals normally admitting maternity cases. It does not include any of the comparatively few cases admitted as an emergency measure to the general wards of public hospitals.

I wish again to call attention to the fact that patients admitted to any maternity hospital and dying elsewhere from puerperal causes are included in the figures from which the maternal-mortality rate is calculated. In order to make the returns more complete the deaths from non-puerperal causes, such as pneumonia, &c., are shown separately from the deaths from puerperal causes. The two together give the total maternal mortality. The puerperal-mortality rate is, of course, the truer guide to the conditions of the institutions under review.

I have continued to group the hospitals into four classes—Groups 1 and 2, solely maternity hospitals; Group 3, St. Helens Maternity Hospitals; and Group 4, mixed hospitals (this group includes all hospitals normally accepting medical, surgical, and maternity cases, but, as explained above, does not include the larger hospitals accepting maternity cases only as an emergency and puerperal cases from other hospitals).

The conditions and conduct of all these maternity hospitals have a marked effect upon the maternal welfare of New Zealand, as out of an estimated total of 27,355 confinements, representing 26,797 live births, more than 18,600, or more than two-thirds of the confinements, took place in them.

The slightly improved maternal-mortality rate for 1930 of 2·78 for the solely maternity hospitals, and 4·33 (as against 8·23 in 1929) for the mixed hospitals, and 3·01 (as against 3·70 in 1929) for all groups in Table I is satisfactory. I take pleasure in congratulating medical officers, matrons, licensees, nurses, and medical practitioners using these hospitals on the improvement already obtained. To the nurses, who in the majority of cases have had to provide the necessary additional equipment and to carry out the aseptic technique, is due most of the credit. To the medical men using these hospitals I appeal for their active co-operation in further raising the standard of asepsis, which eventually should not fall short of the nearly perfect surgical asepsis which is practised to-day in operating-theatres. Though this is now taken for granted, this degree of perfection has only been achieved by the efforts of each individual concerned, particularly the surgeons. I am convinced it is possible for obstetricians by an equal effort to obtain the same results. While the results of our maternity hospitals do not yet equal those of the best large maternity hospitals in other parts of the world, they are approaching them, and with the further active co-operation of all concerned I feel assured of the necessary improvement. The marked improvement in the rate for mixed hospitals following action taken last year as indicated in my report is largely due to the co-operation of the Hospital Boards controlling so many of these hospitals and to their medical officers in readily accepting suggestions for improvement. Further improvement is still necessary, as the results show they are not yet equally safe for maternity cases with the hospitals not admitting medical and surgical cases.

ST. HELENS HOSPITALS.

Table II and Group 2 of Table I show the tabulated results of these seven hospitals.

The number of deaths during the year was nine. In order to calculate the puerperal mortality three must be deducted, as they died from other than puerperal causes. One, two days after admission, from pneumonia; the second, three days after admission, from bronchiectasis; and the third from broncho-pneumonia and pneumococcal bacteraemia. Of the six patients dying from puerperal causes three died from puerperal sepsis, two from embolism, and one from eclampsia.

The maternal-mortality rate per 1,000 confinements, which includes cases dying during pregnancy from other than puerperal causes, is unusually high—namely, 3·64—due to the three cases mentioned above. The puerperal-mortality rate is 2·43, as compared with 2·08 for 1929.

Comparison of several results of the work in the St. Helens Hospitals detailed in Table II with those detailed in a similar table for 1929 calls for a little comment. The forceps rate was 3·84 per cent., as against 4·24 per cent. for 1929—a slight reduction. The extern department for attendance on women in their own homes shows a slight increase. Development of this department is desirable from the point of view of giving more extended services at an economic rate. Extension in Auckland and Wellington depends largely on gaining the co-operation of the Hospital Boards. It is hoped that these Hospital Boards will be able to second the efforts of the Health Department in promoting a better and more extensive out-patient maternity service.

Table II.—St. Helens Hospitals.—General Statistics, 1930.

				Auckland.	Christchurch.	Dunedin.	Gisborne.	Invercargill.	Wanganui.	Wellington.	Total.	Percentage to Total Confinements.
A.—INTERN DEPARTMENTS.												
Total admissions	..	..	..	681	346	206	247	280	175	705	2,640	..
Total deliveries	..	..	..	645	331	191	230	268	166	654	2,485	..
Primiparae	..	..	..	213	81	42	45	57	40	204	682	..
Multiparae	..	..	..	432	250	149	186	211	125	450	1,803	..
Presentations—												
Vertex	..	..	..	622	303	179	219	241	152	599	2,315	93·16
Occipito posterior	..	..	..	11	12	8	5	18	8	21	83	3·34
Face ..	..	..	..	..	..	..	1	1	2	..	4	0·16
Brow	..	..	..	..	..	..	..	..	..	2	2	0·08
Breech	..	..	..	17	12	7	5	9	2	23	75	3·02
Transverse	..	..	..	..	1	..	..	..	2	..	3	0·12
Twins	..	..	..	5	3	3	2	1	3	5	22	0·89

Table II.—*St. Helens Hospitals.—General Statistics, 1930—continued.*

	Auckland.	Christchurch.	Dunedin.	Gisborne.	Invercargill.	Wanganui.	Wellington.	Total.	Percentage to Total Confinements.
A.—INTERN DEPARTMENTS— <i>continued.</i>									
Complications of pregnancy—									
Hyperemesis .. ..	..	..	..	..	..	..	1	1	0.04
Hydramnios	3	2	11	16	..	3	5	40	1.61
Pre-eclamptic toxæmia	8	5	11	1	..	4	31	60	2.41
Eclampsia	1	1	2	..	..	..	3	7	0.28
Nephritic toxæmia	3	1	2	24	7	3	3	43	1.73
Hæmorrhages—									
Unavoidable	2	3	2	1	1	1	2	12	0.48
Accidental, external	5	..	2	..	..	6	3	16	0.64
Accidental, internal .. ..	..	..	..	1	..	..	..	1	0.04
Post-partum, atonic	16	3	3	6	3	4	4	39	1.57
Lacerations of genital tract—									
Perinæum	172	28	12	22	4	23	100	361	14.53
Cervix	6	..	1	..	1	..	..	8	0.32
Uterus .. ..	..	1	..	..	..	..	..	1	0.04
Contracted pelvis, inlet	4	3	..	..	..	3	1	11	0.44
Contracted pelvis, outlet	6	4	..	2	..	..	..	12	0.48
Prolapse of cord	2	4	1	..	1	1	..	9	0.36
Complications of puerperium—									
Sepsis, local	2	2	..	..	2	..	1	7	0.28
Sepsis, general	1	..	..	..	..	..	1	2	0.08
Pulmonary embolism	1	..	..	1	1	..	..	3	0.12
Insanity	1	..	..	..	..	..	..	1	0.04
Crural phlegmasia, venous	3	1	..	..	..	..	..	4	0.16
Crural phlegmasia, lymphatic .. ..	..	..	..	..	..	..	..	..	..
Mastitis	11	..	1	..	3	1	1	17	0.68
Operations—									
Internal pelvimetry	2	..	..	..	..	..	2	4	0.16
Induction of labour	11	4	7	..	..	..	3	25	1.01
Forceps	29	8	6	4	2	15	31	95	3.82
Version	8	5	6	2	1	2	6	30	1.21
Manual removal of placenta	6	2	4	4	3	..	12	31	1.25
Cæsarean section—									
Abdominal conservative	4	..	..	..	..	..	1	5	0.20
Abdominal radical .. ..	..	..	..	..	..	..	..	..	..
Pubiotomy .. ..	..	..	..	..	..	..	..	..	..
Craniotomy .. ..	..	..	..	..	..	..	1	1	0.04
Cleidotomy .. ..	..	..	..	..	..	..	..	..	..
Decapitation .. ..	..	..	..	..	..	..	..	..	..
Morbidity—Total	12	7	6	4	7	5	16	57	2.29
Mortality—Total	2	..	2	..	1	..	4	9	0.36
Infant statistics—									
Total births	650	334	195	233	268	168	663	2,511	..
Premature—									
Alive	6	11	4	7	3	6	14	44	1.77
Dead	9	..	1	2	2	4	7	25	1.01
Full term—									
Alive	624	315	198	220	258	154	625	2,394	96.34
Dead	11	8	1	5	5	4	14	48	1.93
Children born alive who died in hospital	7	3	1	3	5	6	9	34	1.37
Total born dead or died in hospital	27	11	3	10	12	14	30	107	4.31
B.—EXTERN DEPARTMENTS.									
Total attendances	174	225	39	6	3	23	54	524	..
Primiparæ .. ..	..	14	..	..	..	2	..	16	3.08
Multiparæ	174	211	39	6	3	21	..	454	87.14
Forceps applications	11	6	4	..	..	2	7	30	5.75
Total morbidity	2	4	..	..	..	1	..	7	1.34
Total mortality .. ..	..	..	..	..	..	..	..	..	..
C.—ANTE-NATAL CLINICS.									
First visits—Primiparæ	224	124	57	41	60	39	186	731	..
First visits—Multiparæ	605	449	136	165	210	105	384	2,054	..
Return visits	3,015	1,810	320	292	610	345	1,957	8,349	..
Outside visits	131	132	6	10	..	50	112	441	..
Obstetrical outfits sterilized	102	279	12	..	27	11	76	507	..

Table III.—Ante-natal Clinics.

Year.	Number of Clinics.	New Cases.	Total Attendances.	Average Number of Attendances by each Patient.	Outfits sterilized.
1925	16	2,289	7,816	3.0	..
1926	20	3,238	12,554	3.8	401
1927	20	3,919	15,406	4.5	515
1928	21	5,050	20,740	4.11	728
1929	24	5,177	17,555	3.39	924
1930	25	6,027	22,078	3.66	1,106

PUBLIC ANTE-NATAL CLINICS.

Table III shows the comparative attendances for each year from 1925 to 1930 with the average number of visits per patient. I regret to say it is a record of increased work, apparently with little, if any, result upon the death-rate from eclampsia for New Zealand as a whole, which remains deplorably high, as will be shown when discussing maternal mortality. The question of how to obtain better results from the large amount of work done in these clinics will be a matter for special inquiry and special endeavour during the coming year.

The increased advantage taken of the facilities for obtaining sterilized labour and puerperium outfits as shown by the increased number sterilized each year in these clinics has no doubt helped to reduce the puerperal-sepsis rate for New Zealand which will be referred to elsewhere.

INQUIRIES INTO PUERPERAL SEPTIC CASES.

Of the 157 cases of puerperal sepsis notified in 1930, 140 cases were investigated by the Medical Officers of Health of New Zealand by means of special inquiry forms supplemented when possible by personal investigation. The result shows that 22, or 15.71 per cent., of these cases died and 84.29 per cent. recovered. The case mortality for the 157 cases notified was 17.20 per cent., some of these not being included in the inquiry. The total days' illness resulting from the 140 cases investigated was 2,441, an average of 17.44 days per week. This by no means represents the full period of illness in each case, as it was not found practicable to obtain particulars of the days' illness beyond twenty-eight days for any one case. Labour was returned as normal in 57.15 per cent. of cases and abnormal in 42.86 per cent. In 35.71 per cent. of the cases the infant was delivered artificially, and in 17.86 per cent. of the cases delivery of the placenta was manual. Vaginal examinations were made in 47.14 per cent. of the cases. At present I am unable to draw any definite conclusions from these reports regarding the causes of these cases. The causes in many cases are necessarily obscure, and in still more cases are difficult to determine owing to fear on the part of those concerned that complete frankness with regard to matters being investigated may lead to the person questioned being perhaps blamed. My personal investigation of a considerable number of cases convinces me that a very large majority of them are preventable. This is borne out by the conclusions of practically all independent observers, and by the results already obtained.

PUERPERAL MORTALITY.

Table IV. — Showing Comparable Death-rate per 1,000 Live Births for the Years 1927–30, classified according to the International Classification.

				1927.	1928.	1929.	1930.
NEW ZEALAND.							
Accidents of pregnancy	Total	7	11	12	13		
	Rate	0.25	0.40	0.45	0.49		
Hæmorrhage and accidents of labour ..	Total	27	19	18	18		
	Rate	0.97	0.70	0.67	0.67		
Puerperal septicæmia—Ordinary	Total	56	42	30	27		
	Rate	2.01	1.54	1.12	1.01		
Abortion septicæmia (not including criminal abortion)	Total	14	14	19	30		
	Rate	0.50	0.51	0.71	1.12		
Thrombosis, phlegmasia, and embolism ..	Total	6	9	14	15		
	Rate	0.22	0.33	0.52	0.56		
Toxæmia, albuminuria, and eclampsia ..	Total	26	38	34	33		
	Rate	0.93	1.40	1.27	1.23		
Following childbirth (not otherwise defined)	Total	1	1	2	..		
	Rate	0.04	0.04	0.07	..		
Totals		137	134	129	136		
Puerperal-mortality rate, all causes ..		4.91	4.93	4.82	5.08		
Puerperal-mortality rate, excluding septic abortion		4.41	4.42	4.11	3.96		
ENGLAND AND WALES.							
All puerperal causes	Rate	4.11	4.42	4.33	*		
Septic abortion only	Rate	0.33	0.34	0.37	*		
All causes, excluding septic abortion ..	Rate	3.78	4.08	3.96	*		

* 1930 figures not yet available.

The above table, which is compiled from figures supplied by the Government Statistician, sets out the puerperal-mortality rate for New Zealand classified according to the international classification. For the sake of comparison it is shown from the year 1927-30.

Considered as a whole, the table shows an increase of the puerperal-mortality rate which, unless carefully analysed, is apt to be misleading. Analysis shows that a decrease in the death-rate for the four-year period under review occurs in deaths from hæmorrhage and accidents of labour, which are down by about 30 per cent. Also in those due to puerperal sepsis following confinement, which have dropped 50 per cent. during that time. The death-rate from septic abortion, on the other hand, has increased by over 100 per cent. Variation in the other deaths from puerperal causes is insignificant. Reference to the table will show that, excluding deaths from septic abortion, the puerperal-mortality rate has fallen from 4.41 to 3.96 per 1,000 live births from 1927-30. The marked fall in the death-rate from puerperal septicæmia following labour and the considerable fall in the death-rate from hæmorrhage and the accidents of labour may be regarded as satisfactory, though the period is not long enough yet to entitle me to regard the improvement as permanent. I hope it will be. I think, at any rate, it is an indication that we are proceeding along the right lines, and is certainly an encouragement to further combined effort on the part of the medical and nursing professions in co-operation with the Department. The efforts should be directed to further improve and extend the advantages of a sound aseptic technique as applied to obstetrics.

Septic Abortion.

The marked increase in the death-rate from septic abortion is a cause of great anxiety, for while the deaths from puerperal sepsis following confinements show a satisfactory decline, the deaths from puerperal sepsis following abortion in the same period have doubled. The problem of dealing with this is not a medical one. It is universally conceded that the great majority of deaths from this cause are due to induced abortion. The underlying causes of the increase in this practice are undoubtedly social and economic, as opposed to medical, and in consequence cannot be dealt with by the medical profession or the Health Department alone. However, both may be of assistance in co-operating with societies concerned with women's welfare, and with educational and religious bodies in considering what remedial measures are necessary. That something must be done in this direction is obvious. Action will surely follow when it is known that in 1930 thirty women lost their lives through this cause, and of these thirty, twenty-six were married women. The nature of these cases makes it impossible to get any reliable information of the number of non-fatal cases. There is therefore no means of statistically calculating the risk of this procedure; that the risk is very serious is practically certain. If we suppose that there was such a large number as even 700 induced abortions causing the deaths of twenty-six married women it means that the risk of this procedure is more than ten times as great as the risks of child-bearing. It is probable that the risk is much greater than that. I hope the knowledge of the great risk attached to induced abortion will restrain many of those who, for economic or social reasons, or from dread of child-bearing, contemplate resorting to this practice.

Table V.—Death-rates per 1,000 Live Births, from Puerperal Toxæmia, Albuminuria, and Eclampsia, in certain Countries, during the Ten Years, 1920-29.

Country.	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.
Holland .. ..	..	..	..	..	..	..	0.46	0.43	0.39	0.34
England and Wales ..	0.78	0.71	0.71	0.68	0.72	0.70	0.75	0.82	0.84	0.81
Australia	0.86	1.04	0.69	1.10	1.13	1.30	1.22	1.27	1.18	0.84
New Zealand	1.24	1.44	1.21	1.22	1.29	1.14	1.12	0.93	1.40	1.27
Canada .. ..	..	1.08	1.22	1.27	1.39	1.21	1.32	1.33	1.39	..

FORCEPS RATE.

The forceps rate for all maternity hospitals for the year 1930 is 8.12 per cent. and for St. Helens Hospitals 3.84 per cent., as compared with 9.29 per cent. and 4.24 per cent. respectively.

There can be no doubt that the generally reduced forceps rate is largely due to Dr. Jellett's vigorous campaign against the abuse by a few practitioners of these useful and necessary aids to delivery in abnormal cases. There is no doubt that the reduced forceps rate has been one of the influences in reducing the mortality rate due to puerperal septicæmia, and has probably favourably influenced the death-rate from post-partum hæmorrhage.

ECLAMPSIA.

In 1930 the international classification of cases of toxæmia was changed to include cases of hyperemesis gravidarum. In Tables IV and V these have been excluded from the 1930 figures and the previous classification retained for the sake of uniformity. The puerperal-mortality rates for toxæmia, albuminuria, and eclampsia for the four years shows that the increased work done in the public ante-natal clinics, as shown in Table III, has not materially affected this cause of maternal deaths, unless it is to prevent increase. It is unsatisfactory and disappointing, and indicates the necessity of very careful inquiry into the reasons for New Zealand's very high rate under this heading, and into the causes of our failure to reduce it by means of the work of the free ante-natal clinics, co-operating with the medical attendants of the patients, of which a considerable number have been established, as shown in Table III. In these clinics approximately one-fifth of the women confined in 1930 received some ante-natal care.

Comparison of our maternal-death rates for eclampsia with those of England and Wales, Holland, Canada, and Australia, shows that much requires to be done if the rate is to be brought down to anywhere near the levels of the older countries. Recent records from certain hospitals and clinics show what can be done to control this condition granted the necessary surrounding circumstances. I need only quote two instances—the East London Maternity Hospital at Poplar, E.C., under Dr. Oxley, and the Louise Margaret Hospital, Aldershot, under Dr. Major Moss. Records of the work there show that in the first-mentioned hospital ten thousand consecutive cases passed through the hospital and out-patient department, including the ante-natal clinic, and that none died from toxæmia or eclampsia, and only one case of eclampsia occurred, and that in a patient who had failed to attend the ante-natal clinic. In the latter hospital two thousand consecutive cases occurred without a death from this cause. To obtain results anywhere approaching this degree of perfection for the whole of New Zealand with its scattered population will probably take many years. I attribute the lack of tangible results to several facts, the main cause being the lack of knowledge among the women who are themselves concerned of the advantages to be gained in well-being and safety to themselves by systematic and skilled ante-natal care. The remedy for this cause of failure appears to be to enlist to a still further degree the active co-operation of the various societies which exist to promote the welfare of women. These societies have already given considerable assistance, and I am sure be willing to extend that assistance. Another cause of failure in my opinion is a lack of fullest possible co-operation between the midwives and nurses conducting the ante-natal clinics that already exist and the medical practitioners of the district. Such co-operation is an absolute essential to success. Nurses and midwives well trained in ante-natal care can do a great deal of the necessary work. It is, however, essential that their work shall be supplemented by the general and special knowledge of the medical practitioner who will attend and must be responsible for his patient's welfare, and, if possible, by the obstetrical specialist, who should be available to him where special skill and experience is necessary. The special training of midwives and nurses in ante-natal work is proceeding as rapidly as possible in our midwives and maternity nurses' training schools, many of which have well organized and efficient ante-natal clinics attached to them. On the other hand, a considerable number have still much to achieve before these necessary training facilities are provided. A necessary precursor to the establishment of a clinic in connection with any maternity hospital is the education of those who should attend it to an appreciation of its benefits to themselves. Where clinics have been established in connection with maternity hospitals they have proved popular and undoubtedly of great local benefit. Unfortunately, the numbers have not been sufficient to effect the total results of eclampsia for New Zealand. I would repeat and emphasize the fact that the keynote to success in reducing our maternal-death rate from eclampsia is education of wives and husbands to the necessity and benefits of systematic ante-natal care.

I thank the many members of the medical and nursing profession with whom my official duties bring me in contact for their courteous and helpful co-operation, and express the hope that it may continue and result in solving the many problems that require consideration for the promotion of a higher degree of maternal welfare.

APPENDIX.

Maori Susceptibility to certain Infectious Diseases.—Results in Brief of a 1930 Rural Investigation.

By Dr. TURBOTT, Medical Officer of Health, Gisborne.

During 1930 the susceptibility of Maori school-children to tuberculosis, hydatid disease, diphtheria, and scarlet fever was determined over the East Cape Health District. As about one-quarter of the Maoris in New Zealand are domiciled in this area, it is claimed that this study of their children's susceptibility may be regarded as a reliable cross-section of the Maori children of New Zealand. In all, 2,054 children were tested by Von Pirquet, Casoni, Schick, and Dick tests, the first by cutaneous scarification and the last three intradermally. The results are given firstly by racial purity and secondly by age. For the sake of brevity, discussion of sex differences, of corroboration from hospital and private practice, and other points of interest, are omitted from this report. Standard technique was followed in all tests, using Schick and Dick toxin from the Commonwealth Laboratory, and tuberculin and hydatid fluid obtained through the Otago Medical School. The Schick toxin was appropriately diluted in each case just before use, the Dick toxin at approximately fortnightly intervals. Controls were used for each test. Aseptic care was taken throughout, and neither sepsis, nor untoward reactions, nor after-effects occurred.

The results are of interest. As in other investigations, the tuberculin reactors increase with age. The figures according to racial purity show less reactors as the white blood increases. The Maori was originally an unprotected race as regards tuberculosis. It seems as though the pakeha is now making amends for introducing this disease to the Maori by passing on with the admixture of blood increased resistance to the disease.

The East Cape district staple industry is sheep-farming. That Maoris show definite evidence of infection is brought out by the tests, and supported by hospital findings.

The diphtheria-susceptibility findings again bring out age variations, the positive reactors decreasing with age. Figures by racial purity show the opposite result from the Von Pirquet test. The admixture of pakeha blood is increasing the Maori susceptibility to the disease. Definite susceptibility is established, though relatively less than in the pakeha. During this investigation the potency of the testing-materials was tried out on white children from time to time. In this way of thirty-eight white children tested twenty-four, or 63·15 per cent., were positive. Compare this with the 2,054 Maoris giving 255 positives, or 12·41 per cent. susceptibles.

The Dick results are comparable with those of the Schick test. Susceptibility decreases with age, and increases as the Maori blood lessens. The results are also comparable with the South African ones quoted below. There is undoubted relative insusceptibility to scarlet fever manifested in the Maori children. This finding is adequately confirmed from the rarity of scarlet fever in Maoris in hospital and private practice in the district.

MAORI SCHOOL-CHILDREN'S SUSCEPTIBILITY TO TUBERCULOSIS.

The general use of tuberculin as a diagnostic agent in childhood is most desirable. The procedure is painless and harmless. The Von Pirquet test (cutaneous scarification method) was employed to determine the tuberculinization of Maori school-children.

About 90 per cent. of children up to eighteen years in the large towns of Europe and America react to the tuberculin test, the percentage in rural districts, however, being much lower. Tuberculin tests of school-children in Philadelphia showed that 37·7 per cent. were infected with tuberculosis at the age of five years, and 81 per cent. at the age of fifteen years. X-ray examination revealed the presence of latent tuberculous foci in the lungs and tracheo-bronchial lymphatic glands of more than 10 per cent. of school-children. In a rural district in Minnesota the infection was low, being not greater than 12 per cent. at any period between five and fifteen years of age.

We commence life with a negative reaction, but most have become positive when adult life is reached. The consensus of modern opinion was stated thus recently in *Lancet*: "A negative test up to about the age of eight is strong evidence against active infection, while a positive reaction equally strongly indicates it. At the age of seven a positive reaction indicates a five-to-one chance that the child has an active infection, while at fourteen the chance is about even. After childhood the light becomes less clear."

In a rural district of New Zealand the Maori susceptibility was revealed by the cutaneous Von Pirquet test, as follows:—

(a) According to Racial Purity, Ages mixed Five Years to Sixteen Years, inclusive.

	Full Maori.	Three-quarter Maori Blood.	Half Maori Blood.	Quarter Maori Blood.
Von Pirquet positives	170	41	33	5
Number tested	1,277	413	283	81
Positives given as percentage	13·31	9·92	11·66	6·17

(b) According to Age, Blood undifferentiated.

Ages, in Years	..	..	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
Von Pirquet positives	..	..	13	34	36	35	37	47	32	60	41	17	8	2
Number tested	..	..	184	244	259	238	243	213	184	218	153	82	29	7
Positives, as percentage	..	..	7.06	13.93	13.89	14.70	15.22	22.06	17.39	27.52	26.79	20.73	27.58	28.57

MAORI SUSCEPTIBILITY TO HYDATID DISEASE.

The intradermal test for hydatid disease introduced by Casoni is of diagnostic value. Dew states that in uncomplicated cysts an immediate reaction and delayed phase are obtained in 90 to 95 per cent. of cases. A percentage (40 per cent. in one investigation) giving an immediate wheal fail to show evidence of hydatid on detailed investigation. A negative reaction is highly important.

In this investigation 0.25 c.cm. of standardized sterile hydatid fluid was injected into the dermal layer of the skin, a similar injection of normal saline solution serving as a control. Results were read after twenty minutes and again at twenty-four hours.

Maori school-children's susceptibility to hydatid disease, as revealed by the Casoni test, is as follows :—

(a) According to Racial Purity, Ages mixed.

				Full-blooded Maori.	Three-quarter Maori Blood.	Half Maori Blood.	Quarter Maori Blood.
Casoni positives	..	..	..	165	47	49	9
Number examined	..	..	..	1,277	413	283	81
Expressed as percentage	..	..	..	12.92	11.38	17.31	11.11

(b) According to Age, Blood undifferentiated.

Ages, in Years	..	..	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
Casoni positives	..	..	29	29	45	37	26	22	20	28	20	11	2	1
Expressed as percentage	..	..	15.76	11.88	17.37	15.54	10.69	10.32	10.86	12.84	13.07	13.41	6.89	14.28

DIPHTHERIA SUSCEPTIBILITY OF MAORI.

To ascertain the Maori's susceptibility to diphtheria the Schick test was used: 0.2 c.cm. of diluted diphtheria toxin was injected into the skin on the test forearm, while a similar dose of heated toxin acted as control on the other arm, results being read twenty-four hours later, and again at varying times from the third to the sixth day according to the exigencies of one's programme. Pseudo-positive and pseudo-negative reaction were respectively included in positive and negative results.

The susceptibility of white children varies greatly. In Aberdeen burgh and county over eight thousand school-children when tested gave nearly 70 per cent. positives. In Great Britain the general population (mainly children under fifteen) susceptibility to diphtheria approximates 69 per cent. In Belgium Schick tests revealed 75 to 59 per cent. susceptible under five years, 48 to 42 per cent. susceptible from five to ten years, and 39 to 44 per cent. susceptible from ten to fifteen years. In Australia, in one district, 31.5 per cent. of children were susceptible. In New Zealand, in an isolated district, about 80 per cent. of children gave positive tests.

The susceptibility of coloured races seems less. Of 1,859 Sudanese school-children 17.21 per cent. were Schick positive. Of 183 Indian children tested 23.1 per cent. were positive.

The Maori susceptibility is as follows :—

(a) According to Purity of Blood, Ages mixed.

				Full-blooded Maori.	Three-quarter Maori Blood.	Half Maori Blood.	Quarter Maori Blood.
Schick positives	..	..	..	122	46	67	20
Number examined	..	..	..	1,277	413	283	81
Expressed as percentage	..	..	..	9.55	11.13	23.67	24.69

(b) According to Age, Blood undifferentiated.

Ages, in Years	..	..	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
Schick positives	..	..	41	46	39	26	28	23	14	18	12	5	3	..
Number examined	..	..	184	244	259	238	243	213	184	218	153	82	9	7
Expressed as percentage	..	..	22.28	18.85	15.05	10.92	11.52	10.79	7.60	8.25	7.84	6.09	10.34	..

SCARLET FEVER SUSCEPTIBILITY OF MAORI.

The intradermal reaction to scarlet-fever streptococcus toxin is a fairly dependable measure of the susceptibility of the individual tested.

The test consisted of the intradermal injection of 0.1 c.cm. of a 1 in 1,000 dilution of Dick toxin obtained from the Commonwealth Laboratory, Australia. A similar quantity of toxin of same strength heated to boiling-point for one hour and a half was used as control on the other arm. In the interpretation of the tests pseudo and positive reactions were counted as positive, and pseudo and negative reactions as negative. Results were read at twenty-four hours, and again at the third day approximately.

The average percentage of positive Dick reactors as reported by eighteen different observers in Europe and America was 37.78 per cent.

The Dick positive rate among 11,284 healthy Japanese in Dairen was 37.2 per cent. Chinese living there had a much lower rate—namely, 19.4 per cent. of 3,376 tested. Of 646 persons tested in Peking 46.4 were found to be Dick positive. In Palestine, in a small Arab and Armenian group, 7.4 per cent. were Dick positive. In Tanganyika, tropical Africa, 376 Natives gave 1.8 per cent. positive reactions.

It has previously been held in New Zealand that scarlet fever is practically unknown among Maoris. The Native race is not immune to scarlet fever, though certainly relatively immune as compared with the pakeha. The Maori susceptibility is as follows:—

(a) According to Blood, Ages mixed.

			Full-blooded Maori.	Three-quarter Maori Blood.	Half Maori Blood.	Quarter Maori Blood.
Dick positives	..	..	25	6	12	4
Number examined	..	..	1,277	413	283	81
Expressed as percentage	..	..	1.95	1.45	4.24	4.93

(b) According to Age, Blood undifferentiated.

Ages, in Years	..	..	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
Dick positives	..	..	7	9	3	10	3	5	2	4	4	..	..	..
Number examined	184	244	259	238	243	213	184	218	153	82	9	7
Expressed as percentage	3.80	3.69	1.15	4.20	1.23	2.34	1.08	1.83	2.61

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